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CALIFORNIA AND WESTERN MEDICINE

VOLUME XXXI

OCTOBER, 1929

No. 4

CIRCULATORY DISTURBANCES OF THE EXTREMITIES*

WITH SPECIAL REFERENCE TO THROMBO-ANGIITIS
OBLITERANS AND ELEPHANTOID CONDITIONS

By FREDERICK LEET REICHERT, M. D.

San Francisco

DISCUSSION by Alfred C. Reed, M.D., San Francisco;
Joseph K. Swindt, M.D., Pomona.

IMPAIRMENT of circulation and disturbance of the circulatory balance in an extremity may produce a variety of symptoms which can be attributed to damage of the vessels themselves, and in rare instances to a derangement of the sympathetic nervous mechanism which secondarily affects these vessels.

In a normal extremity a physiological balance is maintained between the arterial system of efferent vessels and the afferent vessels of the venous and lymphatic systems. Disturbance of this balance is seen in the cold leg of the arteriosclerotic person, in the swollen and often ulcerated leg associated with varicose veins, and in the huge, heavy limb of elephantiasis. In other words, circulatory disturbances may be primarily arterial, venous or lymphatic in their origin; or, by reason of the close relationship and interdependence of these three systems, the disturbance may be the result of their combined dysfunction.

The arteriosclerotic individual probably illustrates the commonest form of circulatory disturbances. The symptoms arising from the gradual occlusion of the arteries and arterioles in this disease need not be enumerated. The pathological process in the extremity is confined to the arterial system. When the arteries are injected with a mass opaque to the passage of x-rays, such as Hill's bismuth oxychlorid mass,¹ it is evident that the symptoms are the result of a greatly impaired arterial supply to the limb.

The first illustration shows the arterial tree of a normal individual as outlined by Hill's x-ray mass, and clearly defines the main arterial trunks in the leg; popliteal, anterior tibial, posterior tibial and peroneal, with an accurate pattern of the metatarsal arteries of the foot.

* From the Department of Surgery, Stanford University Medical School.

* Read before the General Surgical Section of the California Medical Association at the Fifty-Eighth Annual Session, May 6-9, 1929.

ARTERIOSCLEROSIS

Figure 1 also shows an arterial injection of the amputated leg of a man of sixty, with a history of circulatory difficulty in both legs for several years and diabetes mellitus of one year's duration. Gangrene had developed in the little toe of the right foot, and plain x-rays of both legs showed marked calcification in the posterior tibial artery. On injection the normal arterial tree was found to be obliterated with little, if any, evidence of compensatory collateral circulation. This is the typical x-ray picture of injection studies on thirteen legs amputated for arteriosclerotic gangrene. Dissection and histological examination of the arteries in such extremities shows thickened, rigid vessels, with obliteration of the lumen.

Only a small amount of the injecting material, 20 to 40 cubic centimeters, is required to fill all the vessels in an arteriosclerotic extremity.



Fig. 1.—Arterial injection with Hill's mass in a normal (right) and an arteriosclerotic extremity.

The next case is that of a man of seventy-two with generalized arteriosclerosis, who sought relief for varicose veins. Those on the good, or right, leg were treated by the injection of a sclerosing solution with relief and with healing of an indolent ulcer. Two years later a varicose



Fig. 2.—Arterial injection in thrombo-angiitis obliterans showing extensive collateral circulation.

ulcer developed near the left ankle and shortly after gangrene appeared in the left fourth and fifth toes. After amputation above the knee, the veins were injected with Hill's mass, nearly 300 cubic centimeters of fluid being needed. The x-rays showed the tremendous venous bed, most of which was superficial, and the extent of the varicose veins well down into the foot. Dissection of the leg showed the arteries to be sclerosed and obliterated. The lack of balance between the arterial and venous systems in this case may have been a factor in the development of gangrene, as Morton and Pearse² and De Takáts, Quint, Tillotson and Crittenden³ have recently indicated; and has led to our subsequent treatment of obliterating the varicose veins of patients with threatening gangrene from endarteritis who had evident varicosities. The decrease in the venous bed by thrombosis leads to improvement in the circulation to the threatened area and with definite amelioration of symptoms, especially those of claudication. It is still problematic whether the ligations of the popliteal vein in the impending gangrene of arteriosclerotics as Oppel⁴ suggests, or even a more proximal ligation of the venous trunk, according to the principle of Holman and Edwards⁵ is to be advocated.

THROMBO-ANGIITIS OBLITERANS

Our first injection of an extremity amputated for Buerger's disease was made in 1922, when Hill had just introduced his opaque x-ray mass. To our great astonishment, in this case of a man of forty-five (Figure 2), the x-ray films showed an absence of the normal arrangement of the vessels and an extensive collateral circulation with many vessels extending down to the point of gangrene. The popliteal artery was thickened but not thrombosed. The main arteries of the leg and

foot were all obliterated. The toes on the opposite foot had been amputated at intervals of from ten to six years previously for gangrene, and five years before, the third and fourth toes were removed. Doctor Holman amputated the leg because of gangrene of the big toe and to relieve the man of pain so excruciating that he threatened suicide. Nine days after amputation gangrene appeared in the right thumb.

Buerger's disease or thrombo-angiitis obliterans, with its cold, painful, sensitive extremities, presents a most interesting condition of disturbed circulatory balance. Histologic studies show that although the pathologic process involves mainly the arterial system, there is also thrombosis and inflammation in the veins. The extent of this process may be limited to the smaller and more distal vessels of the extremity, or it may be evident in the proximal part of the extremity, often leading to occlusion of the main arterial trunk. Clinically, in this slowly developing disease there are periods of exacerbation followed by varying periods of remission which Meleney and Miller⁶ interpret from their pathologic and injection slides as a contest between two forces, blockage of the vessels on the one hand and collateral blood vessel development on the other. Whether or not gangrene develops is determined by the relative speed of the two processes. Since there is a limit to the speed with which collateral circulation develops, Dr. Dean Lewis and I felt that a stimulus to the development of extensive collaterals could be obtained by ligation of the femoral artery just distal to the profunda⁷ and since 1926 we have had a number of patients who have been definitely improved by this operation. In some cases we found the femoral artery already occluded, in which case the vessel was divided merely for the relief of pain. Numerous other procedures have led to improvement, such as intravenous saline injection, foreign protein injection, ligation of the deep veins, ramisectomy and ganglionectomy, but none of these seem to yield results when the process is confined mainly to the proximal part of the extremity.

EDEMA

Edema of the extremities can be as incapacitating as the arterial diseases I have mentioned. The edema caused by venous stasis in varicose veins produces much suffering and limitation of activity. Blood-vascular edema occurring in nephritis from capillary injury leads to swelling throughout all the tissues of the extremity, producing a pitting edema.

A lymph edema often accompanies impairment in the venous return of an extremity as is seen in varicose veins or thrombophlebitis. This feature is rarely recognized and the swollen, indurated limb is usually attributed solely to obstruction of the venous outflow, whereas the true, primary cause is obliteration of lymphatic vessels by infection with resulting lymph stasis.

LYMPHATICS

I want to emphasize the presence and the importance of the lymphatics whenever body circulation is being considered. Lymphatics are

modified veins and the lymphatic system, with its definite vessels and its definite capillaries of endothelium, plays as definite a rôle in absorption as does the venous system. The venules or blood capillaries contain plasma, the lymphatics contain lymph, and the tissue spaces contain tissue fluids. The lymphatic system merits an objective point of view which recognizes it as an integral part of the afferent circulatory system. The lymphatico-venous return then constitutes the afferent side of circulatory balance.

A diagram of the lymphatic system, made many years ago, shows the great number of lymphatic vessels of the leg and thigh, both in the superficial group and in the deeper set. Eventually both superficial and deep lymphatics drain into the same regional lymph glands.

ELEPHANTIASIS

Simple lymph edemas are the result of stasis. Add the factor of infection and we have an entirely different picture, that of elephantiasis. Chronic infection, usually caused by a streptococcus, after a time readily leads to a progressive hypertrophy of the hypodermal and dermal connective tissue. This fibromatosis, as Matas⁸ pointed out in 1913, preceded by and associated with lymphatic and venous stasis, and the hyperplasia of the connective tissue with a brawny, hard lymph edema, are distinctive features of elephantiasis. Simple mechanical blockage of the lymphatics causes a regional lymph edema, but the characteristic fibromatosis, and the histologic changes peculiar to elephantoid states, cannot be produced without pathogenic infection.

X-rays taken to define the soft tissues of an extremity rather than bone, clearly show this difference in edemas.



Fig. 3.—Soft tissue x-ray of chronic venous edema of five months' duration in a case of glomerulonephritis. All tissues are edematous.



Fig. 4.—Soft tissue x-rays showing characteristic subcutaneous fibromatosis in an elephantoid leg compared with the unaffected side. (Retouched photograph.)

Figure 3 is an x-ray of a man who had a chronic, vascular edema of over five months' duration from glomerulonephritis. This soft tissue x-ray shows a diffuse swelling throughout all of the tissues of the leg. Subsequent to treatment in the hospital the edema disappeared, leaving the legs of normal size and without any thickening of the skin or subcutaneous tissue.

That an elephantoid state is often found associated with chronic venous stasis is seen in the case of a woman of sixty-three, with a history of varicose veins and a chronic eczema of the right leg for forty-eight years. Scratching finally led to an ulcer three years ago which was treated by varicotomy. The incisions became infected, the leg inflamed and swollen, and since then there have been recurring attacks of inflammation with progressive increase in the size of the leg and in the degree of induration in the superficial tissues.

X-rays of the lower limbs, taken to demonstrate the soft tissues, showed the great thickness of the subcutaneous tissues with numerous fibrous trabeculae, many of which were perpendicular to the skin surface. There was no evident increase in the musculature of the leg; only the skin and hypodermal structures were involved.

Another interesting case is that of a woman of forty-seven, whose left leg when she was eighteen was caught in a door, and inflammation and swelling which lasted for many weeks followed the accident. Eight years ago, after pregnancy, the veins of this leg became swollen and thrombosed, followed by "blood poisoning" and ulceration. For two years she has had recurrent attacks of erysipelas associated with nausea and vomiting, chills and fever, and a red erythematous involvement of the leg and thigh. Her x-rays (Figure 4) show this great thickening and fibrosis of the subcutaneous tissues.

These two cases have been considered end-

results of venous obstruction due to thrombosis of the veins, just as in phlegmasia alba dolens. But, as Homans⁹ has recently pointed out, and as Matas and Halsted have always taught, the inflammation and infection involve the lymphatic system as well, producing, not a pitting edema, but a hard, brawny lymph edema, which eventually leads to a chronic elephantoid condition of the extremity.

DANGER OF THE CHRONIC LEG ULCER

The chronic leg ulcer, with its low-grade infection and varicose background, tends to produce an elephantoid condition in the affected member which is evident on examination and by soft tissue x-rays. The possible development of such an elephantoid state in the leg should always be considered and its prevention insured by rapid epithelization of the ulcer. One method for securing healing, and restoration of circulatory balance is by sterilization of the ulcer, excision or thrombosis of the varicose veins and offending perforating veins, and then skin-grafting of the ulcer.

Another instance of elephantiasis is of a woman of seventy-one, who first felt a lump in the right breast sixteen years ago. Pain developed in the breast four years ago following a blow, and two years later a swelling developed in the axilla. One year ago the carcinomatous lump in the breast ulcerated, and since that time the right arm and forearm have shown progressive enlargement. Soft tissue x-rays of her arm and forearm show the characteristic picture of progressive elephantiasis on the right side. Elephantiasis such as this may follow the radical operation for carcinoma of the breast where healing is complicated by considerable scar tissue and a low-grade infection, as illustrated in Halsted's paper¹⁰ on elephantiasis chirurgica.

CONCLUSION

In presenting these instances of circulatory disturbances of the extremities, my purpose is to emphasize two rather neglected points: First, the great collateral circulation characteristically present in thrombo-angiitis obliterans; and, second, the significance of lymphatic function in the mechanism of circulatory balance.

Soft tissue x-rays of an extremity present a definite means of determining the extent and degree of elephantiasis or an elephantoid condition.

Stanford University School of Medicine.

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DISCUSSION

ALFRED C. REED, M. D. (384 Post Street, San Francisco).—The clear-cut classification and differential pathology presented by Doctor Reichert is a joy indeed in a field where confusion often seems to reign supreme. I want to comment briefly on only one phase of this subject and that is the question of the nature of elephantiasis. Chronic lymphatic obstruction leading to the peculiar condition called elephantiasis, may be, in the first place, congenital or acquired. Congenital cases rest on an anatomical abnormality of stenosed lymph channels, analogous and perhaps at times related to a similar stenosis in the arterial system, as for instance in congenital total hemiatrophy. Acquired cases are either filarial or nonfilarial. Of the latter group we note elephantiasis following septic infection of lymph channels; toxic absorption of certain drugs following lues; resulting from pressure, as from tumor or glands and, after operation, associated with destruction of lymph vessels or their blockage by scar tissue.

Congenital cases also include Meiger's or Milroy's disease and often have a familial incidence.

In regard to filarial or true elephantiasis, unfortunately the pathogenesis is poorly understood and has been the subject of relatively little study. The entire subject of filariasis offers little but mystery to the student. There are numerous unexplained phenomena in the life history, transmission, pathogenicity, and symptomatology. Treatment is largely ineffective. The microfilariae disappear from the circulating blood with fair constancy before onset or with the appearance of elephantiasis. This is assumed to be due to mechanical blocking of access to the venous system. It may be, on the other hand, that death of the parent worms results in toxic changes which are responsible for the lymph obstruction. Usually long repetition of attacks of filarial or elephantoid fever or lymphangitis precede the actual enlargement of the part. Streptococcus infection is often supposed to coexist.

Elephantiasis is not the result of lymph stasis alone. Other factors are hypertrophy and fibrosis. There occur focal fibrosis and necrosis, and at times giant cell formation. In uncomplicated cases, affected parts are free of bacteria. Pathologic changes may be due to the toxic secretion of the worms, or disintegration of worms or microfilariae. Abscess may follow irritation from dead worms.

Where the lymphangitis is present there may be staphylococci or streptococci as secondary invaders.

It may be that irritation from worms in the vessels paves the way for bacterial invasion, even long after the death of the worms.

The location of chief exposure to bites of the infecting mosquitoes seems often to determine the location of the lesion. The incidence of elephantiasis is directly proportional to the percentage of the population showing microfilariæ in the blood.

Treatment is eminently unsatisfactory except where the part affected is susceptible of amputation in whole or in part. The various operations designed to secure deep lymph drainage, such as the principle enunciated by Kondoleon, are successful in a minority only. Measures designed to promote absorption of fibrous infiltration by medical means are sometimes successful. Pressure and uniform support are helpful but not usually fully effective and never curative. Fibrolysin has been recommended, but is entirely without effect.

✱

JOSEPH K. SWINDT, M. D. (Pomona).—Humanity owes a debt of gratitude to Dr. Leo Buerger for his scientific studies of the circulatory diseases of the extremities. In these he singles out the condition of thrombo-angiitis obliterans in such a masterful manner that the disease is commonly designated by his name. The medical profession of California is likewise deeply obliged to Doctor Reichert for this paper, which so clearly and concisely portrays the fundamental pathology of these disabling disturbances in the vascular bed of the hands and feet.

During the past ten years I have been much interested in the subject of thrombo-angiitis. Doctor Buerger's studies led him to think that this was a disease peculiar to the Jewish race, but since the publication of his book has so aroused the interest of the profession it has been recognized in all races and in the young as well as the old. As time goes on we also realize that there is no definite single etiologic factor other than some type of chronic infection. This is quite clearly indicated by the very constant capillary inflammation, the so-called "wandering phlebitis," which characterizes the frequent exacerbations of Buerger's disease.

We need such papers as this to teach us how to avoid the common errors of diagnosis in painful conditions of the extremities. Long before some discriminating colleague makes a correct diagnosis these patients are mistreated for ingrowing nails, fallen arches, varicose veins, neuritis, rheumatism, and what not. All the time the patient goes about complaining of pain which is really out of all proportion to what may be honestly attributed to any of these ordinary conditions or anything which the doctor is able to discover in a casual examination. This inordinate pain, which in time amounts to torture, I think is the cardinal symptom of thrombo-angiitis. When it is encountered I think one will usually be able to find the isolated areas of active phlebitis which so readily differentiate Buerger's disease from these other conditions. At least it should arouse our suspicion to the point where we will undertake a thorough diagnostic study which should surely include these x-rays of the soft tissues emphasized so well by Doctor Reichert in this paper.

Naturally any treatment which is instituted after gangrene is present is going to prove highly unsatisfactory. However, there is good reason to hope for worthwhile relief from such operations upon the proximal arteries and veins as have been suggested by Leriche, Holman, Lewis, and Reichert.

The objective of these procedures is to restore a physiological balance between the efferent and afferent vascular channels, and may readily be carried out by any of us who are ordinarily versed in surgical anatomy and technique.

PULMONARY TUBERCULOSIS—NON-APICAL INFILTRATIONS*

REPORT OF CASES

By K. FISCHEL, M. D.

Los Angeles

DISCUSSION by Charles C. Browning, M. D., Los Angeles; F. M. Pottenger, M. D., Monrovia; Max Rothschild, M. D., San Francisco.

THE dogma that pulmonary tuberculosis in the adult almost invariably begins in the apical region, whence it spreads toward the middle field and the base, originated long before the advent of the x-ray. That the apices are the site of predilection, where phthisis first develops and from where it starts on its disastrous course toward the base, seemed proved conclusively by the fact that changes in other parts of the lungs are almost invariably preceded by positive findings at the apices and by innumerable necropsy reports, revealing pathology of apparently long standing in the apical parts whenever tuberculosis involving other parts of the respiratory organ was present and even when there was no history of active tuberculosis during life.

The doctrine that pulmonary tuberculosis in the adult begins in the apex, though not supported by animal experimentation, was so firmly established that radiography of the chest was welcomed as a new method to substantiate and not to reinvestigate critically the correctness of the theory.

CASES REPORTED IN LITERATURE

During and after the World War, however, many cases were reported in which the course of the tuberculous infection did not run true to form, and where the old theory of the apical origin of phthisis did not seem to fit. These cases were atypical for two reasons: the first, because the localization of the earliest demonstrable lesion was not the apex, but some part of the lungs below the clavicle; and second, because the first lesion was not proliferative in character but of the exudative (bronchopneumonic) type.

The onset and development of these nonapical infiltrations have been studied since 1920 by Franz Redeker, who as the head of a dispensary of big steel factories had carried out systematic physical and x-ray examinations of a closed group of a hard-working population. These plates enabled him to trace the origin of the numerous forms of acute and chronic pulmonary tuberculosis to infiltrations, which first appear below the clavicle. These infiltrations were known to French writers as far back as 1908. They were first described in 1923 by Wessler in New York in his textbook, "Diseases of the Chest," and later by Assman in Germany in 1925. Finally Fishberg, in 1928, gave an excellent description of infraclavicular infiltrations and reported eleven cases.

* From the General Hospital, Los Angeles, Tuberculosis Section, Charles C. Browning, M. D., Chief of Service.

* Read before the staff meeting, Medical Section, General Hospital, Los Angeles, February 25, 1929.

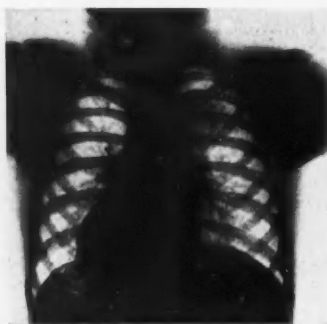


Fig. 1.—B. R., 10 years. Definite parenchymatous infiltration in the right upper lobe.

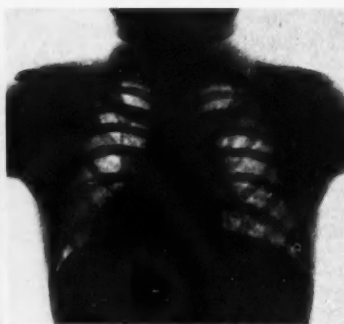


Fig. 2.—Shadows of peribronchial structures increased in density with definite increase in density in the parenchymal portion of the upper right lung field in the second intercostal space.

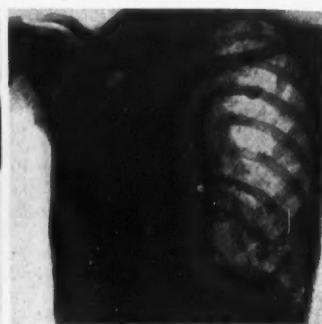


Fig. 3.—Organized and calcified infiltration in the second right interspace.

RANKE'S THEORY

All descriptions, however, were of single cases because the work of Ranke, who had the vision to see the cause behind the single cases, was not sufficiently well known. Ranke's theory, advanced in 1916, made it possible for the German writers to give a plausible and logical interpretation of all nonapical lesions and has led to a revision of the time-honored doctrine of the apical origin of phthisis.

Redeker and his coworkers see in the infraclavicular infiltration the first focus due to a superinfection. It is their contention that pulmonary tuberculosis nearly always begins in some part of the lungs below the clavicle, from where it spreads through the formation of new foci to the middle field and the base, involving the apices at a much later period. While late apical tuberculosis is quite common, incipient apical tuberculosis is extremely rare. Our diagnosis of incipient apical tuberculosis is, therefore, a delayed diagnosis, our treatment is not early but late treatment. According to the newer German school, apical tuberculosis is nearly always benign and rarely progresses to open tuberculosis. The patient with the well-known changes in the apical region, which are interpreted as symptoms of incipient tuberculosis, is therefore not in need of any care unless he shows signs of activity, because these changes are always secondary and of no significance.

STAGES IN INFECTION

To understand the importance of Ranke's work, it must be remembered that the vital question, why in one case exudation predominates and in another proliferation, has been raised repeatedly for the past forty years, but no answer could be given. Still the answer was so simple that only a genius could see it. It has in fact been given by R. Koch himself, whose classical experiment showed that the reaction to the first infection is proliferative, whereas the anatomic tissue response to a reinfection is inflammatory. As Allen K. Krause puts it, "Proliferation is the essence of native tissue response, exudation the essence of allergic response." After the discovery by Pirquet of the allergic skin reaction the change in the tissue reaction to bacilli and bacilloproteins

attracted much more attention than the difference in the pathologic anatomic process. It was left to Ranke to recognize that the immunobiologic reaction and the pathomorphologic process are closely correlated and inseparably linked together, influencing each other to such an extent that it is not always possible to determine whether the anatomic process induces the corresponding phase of immunity, or vice versa. Or, in other words, whatever happens in and around the focus is the anatomic manifestation of the phase of immunity, and the degree of allergy is the immunobiologic manifestation of the pathomorphologic process.

First Stage.—Ranke originally distinguished three stages in tuberculosis, each one characterized by a different state of immunity and a different way of propagation of the infection. Ranke's first stage, that of the primary complex, which comprises the site of the primary infection and the regional lymph nodes, is marked by a profound modification—*allergy*—of all tissue cells after the first inoculation. The defense of the body against the first invading bacilli is markedly nonspecific and consists of mechanical defensive measures, which are always called into play against any irritating foreign body. To quote Krause: "The body treats the first bacilli as it would any foreign bodies, that is, it walls them off and sets them apart from normal tissue." Since the tubercle is avascular the infection at this stage is confined to the lymphatics and the infection can be propagated through the lymph vessels only. Pulmonary tuberculosis in its first stage is, therefore, a tuberculous lymphadenitis and the infecting bacilli are walled off within the lymphatics, from which they cannot escape, unless they break through the mechanical barrier, as, for example, when a caseated lymph node breaks into a blood vessel or into the bronchial tree.

Second Stage.—Ranke's second stage begins with the first reinoculation of the allergic body. All tissue cells have become sensitized to the infecting bacilli and their proteins. The tissue response is, therefore, prompt and intense, causing local and general allergic symptoms. Inflammatory changes consisting of hyperemia, engorgement of blood vessels, emigration of lymphocytes,

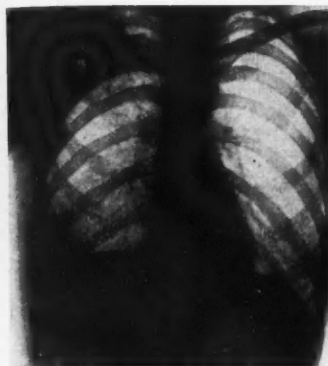


Fig. 4 (Case 1)—L. B., 19 years. Area of infiltration in the right upper lobe. Its densest portion in the subclavicular region, where a small cavity is formed. The right interlobar septum thickened.

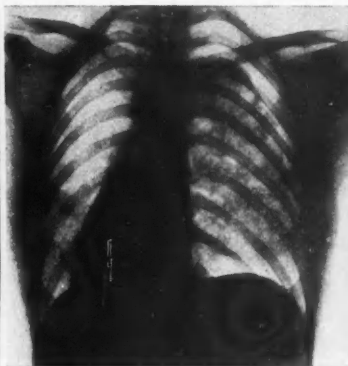


Fig. 5.—November 11, 1928: Patient discharged. Regular refills given since then. Patient has gained twenty pounds and is free from all symptoms.

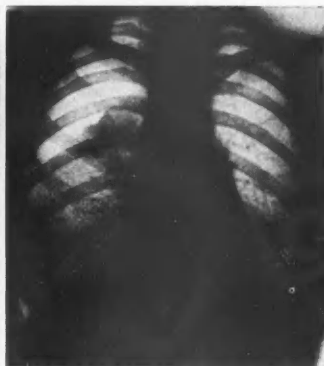


Fig. 6.—January 9, 1929: X-ray shows a complete compression of the right lung and obliteration of the cavity. The area of cavitation in the right upper lobe appears to be completely closed and fibrosed.

and so on, make up the anatomic picture of the focus of reinfection. General allergic symptoms may or may not be present, depending on the size of the focus and the intensity of the perifocal inflammation. During this stage infection spreads through the blood stream. Ranke's second stage, that of generalized tuberculosis, is therefore distinguished by hypersensitiveness to reinfection, by inflammatory tissue changes and distant hematogenous metastasis.

The third stage, the stage of isolated organ involvement, is characterized by a relative anergy and intracanalicular propagation. The disease is spreading by continuity and through the visceral ducts of the body.

The history of science teaches us that a genius often advances a theory which much later on is supported and proved correct. Thus, on the basis of Ranke's theory, the existence of nonapical infiltrations, accompanied by perifocal inflammation, could have been foreseen. If Ranke is correct in his conception of the development of pulmonary tuberculosis, any new focus, due to a superinfection, must of necessity be inflammatory and not proliferative in character, and can be located in any part of the lungs to which reinfecting bacilli can be brought by the inhaled air or carried by the lymph or blood stream from old deposits in the intrathoracic lymph nodes or other parts of the lungs. The fact that these lesions are usually found below the clavicle, toward the periphery of the lungs and nearer to the dorsal surface of the upper lobe—that is, in parts of the lungs which are supplied by the first main bronchus of the upper lobe—seems to indicate that in most of these cases we have to deal with aërogenic reinfections and not with metastasis through the blood or lymph stream.

SUPPORT OF RANKE'S THEORY BY REDEKER

According to Redeker and his followers, these infiltrations, which he calls early or incipient infiltrates, represent the first focus due to a superinfection. They are described as soft, cloudy, homogeneous shadows, the size of a cherry to that

of a plum, which are surrounded by normal lung tissue. The physical symptoms are usually very indefinite or entirely lacking. The only physical signs which occasionally can be elicited are a slightly impaired resonance and diminished breath sounds over a circumscribed area. The subjective symptoms are equally insignificant and indefinite. The patient may have very vague complaints or no symptoms at all. Sometimes a sudden hemorrhage or prolonged subfebrile temperature leads the patient to the dispensary or office. Very often a typical history of a cold or gripe of short duration is given. The German writers mention a moderate rise in temperature, an increased sedimentation to 12 and 16, and changes in the white blood picture, as the most constant objective symptoms. The onset of the early infiltrate is usually so insidious, and the objective and subjective symptoms so insignificant, that a diagnosis without fluoroscopy and good stereoscopic films is hardly possible. It is necessary to search for the early infiltrate, says Redeker, while the apical lesion forces itself upon the observer.

The early infiltrate, which is anatomically a tuberculous bronchopneumonia, in a small area can undergo various changes. The most favorable development is complete spontaneous retrogression. The infiltrates and the exudate may be absorbed in a short time, leaving no trace (Figs. 1 and 2.)

More often indurative changes set in and organization takes place with subsequent calcification, thus preserving on later films a very dense sharply outlined shadow at the site of the early infiltrate. (Fig. 3.)

The developments of the early infiltrate which lead to the acute and chronic forms of pulmonary tuberculosis are manifold and sometimes of a dramatic suddenness. We are dealing with a bronchopneumonic infiltration, surrounded by an area of perifocal inflammation, which is in no way walled off from the surrounding tissue and which has ample communication through bronchus, circulation, and lymphatics to other parts of the lungs, and any development is therefore



Fig. 7 (Case 2)—D. L., 38 years. Feb. 14, 1929: Hazy infiltration in the right upper lobe * just above and extending to the interlobar fissure. Apices clear: consistent with incomplete pneumonic consolidation.

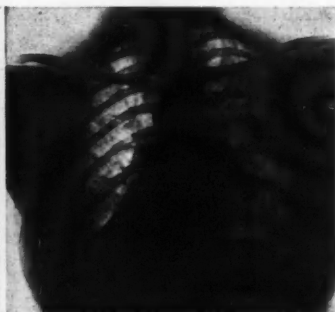


Fig. 8.—February 21, 1929: Dense diffuse infiltration in the right lung; most pronounced above the interlobar fissure. The involvement is similar in character to that of February 14, 1929, but more advanced, suggestive of a pneumonic type of tuberculosis.

* Acknowledgment is hereby made to Dr. R. A. Carter, roentgenologist of the Los Angeles General Hospital, for his assistance.

possible. The first crisis arises if the infiltrate progresses to caseation and then to softening and cavity formation. At that time an irregularly outlined kernel of deeper density can be made out on the film, which corresponds to the beginning demarcation of the caseated center, but even at that time the caseated focus can undergo induration. The stage of caseation is marked by increased allergic symptoms. The patient appears decidedly toxic, his temperature rises higher than in the initial stage, his pulse is rapid, and he gives the impression of being very sick and almost acutely shocked. The objective and subjective symptoms at the stage of caseation are altogether out of proportion to the insignificant physical findings. Only if softening and cavity formation takes place, the patient begins to cough and to expectorate, or he develops a dry cough if the perifocal inflammation reaches the pleura.

REPORT OF CASES

The following case came under our observation in the stage of beginning caseation.

CASE 1.—L. B., 19, white, female. Milliner. Admitted to hospital November 2, 1928, with moderate hemorrhage. Family history: Negative. Personal history: Usual childhood diseases; 1919 and 1929, flu. Cold three weeks ago. Since then loss of weight, lassitude, slight cough. On November 2, 1928, patient expectorated one glass of bright blood. On admission: Cough, headache, temperature 102. Physical examination was negative. Chest: Slight rigidity of right shoulder muscles; right apex slightly dull. Breath sounds—vocal and tactile fremitus—normal. Temperature from 98 in the morning to 102 in the afternoon. Pulse, 90 to 136. Respiration, 20 to 22. Blood: red cells, 3,820,000; hemoglobin, 58; white cells, 8400; lymphocytes, 32 per cent; polynuclear, 68 per cent. Urine was negative. Sputum, positive for blood, negative for cough. X-ray (Fig. 4).

Under rest and symptomatic treatment the hemoptysis stopped after two days. Temperature ranged between 100 and 102.

November 8, 1928: Artificial pneumothorax induced. Initial pressure, 5-2, 400 cc. air given. Final pressure, 4-1. November 9, 1928: Temperature normal, and remained normal since then. Patient feels well. First refill given. (Fig. 5.)

March 5, 1929: Patient has gained twenty-two pounds and is free from all symptoms. (Fig. 6.)

The fate of the patient at this critical period depends on the stabilization of his immunity. Marked hypersensitiveness will cause an extensive perifocal inflammation, which again will tend to accentuate the existing hypersensitiveness. One toxic shock then follows the other, the infiltration and the perifocal inflammation are rapidly extending, until the greater part of the whole lobe is involved. Thus we get the well-known clinical picture of the acute caseous lobe or caseous bronchopneumonia.

CASE 2.—D. L., 38 years, negro, female, married. Admitted to General Hospital, Los Angeles, February 13, 1929, for hemoptysis. Had had four hemorrhages on the day of admission—about one pint in all. Family history: Negative. Personal history: Two pregnancies fourteen and twelve years ago. No serious disease. Never coughed or spit up blood before. Flu one week ago. Since then cough and fatigue. On admission was well developed and well nourished. Temperature, 99.6; pulse, 80. Chest: Expansion equal; slightly impaired resonance over right upper lobe with rough breathing sounds. Urine was negative. Sputum, positive for acid-fast bacilli. Blood: hemoglobin, 85 per cent; white, 10,900; polynuclear, 82 per cent; lymphocytes, 18 per cent. (Figs. 7 and 8.)

COMMENT

It is the contention of the German writers that this malignant development can be prevented if the early infiltrate is diagnosed and artificial pneumothorax applied in time. If the early infiltrate does not show a tendency to spontaneous retrogression within a short time, artificial pneumothorax should be induced. This simple surgical procedure not only prevents a malignant acute form, but most probably saves the patient from a long chronic disease and years of suffering. Incidentally, it may be pointed out that pneumothorax at this early stage offers no difficulties at all. There are no adhesions, the pleura is normal and the lungs elastic, and small amounts of air will usually result in a good compression. The marked allergy very often subsides even without surgical interference, and at the same time indurative productive changes check the extension of the infiltration. The wall of the cavity becomes more resistant, the isolated round cavity has developed.

The second turning point in the life of the patient is the (most probably bronchogenic and not hematogenous) dissemination, which will manifest itself on the film by an increased cloudiness in the neighborhood of the infiltrate. In the cloudy area soon appear, under secondary allergic symptoms, more dense, oval shadows, which, however, do not resemble the well-known clover leaf spots, which are characteristic for the fully developed acinonodular tubercle. Redeker interprets these shadows as perifocal inflammations around minute new foci. For their origin by aspiration speaks the fact that the dissemination never appears in both lungs, which would be expected in hematogenous metastasis, and that the dissemination is first noticeable in the lower regions and in the area between the hilus and

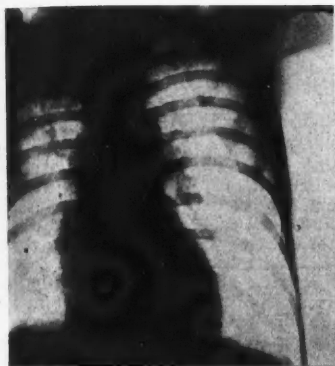


Fig. 9.—March 23, 1928: Diffuse infiltration in the right upper lobe partially fibrosed with two small cavities.

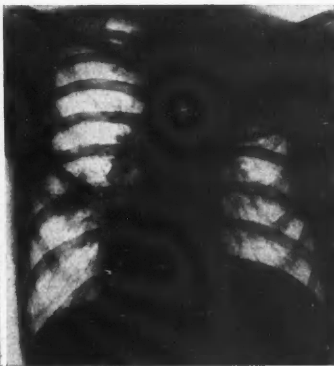


Fig. 10.—January 18, 1929: Dense infiltration, giving the appearance of dense pneumonic tuberculosis involving the right upper lobe. Zone of infiltration projecting out to the left fourth interspace at about the mammillary line, enclosing a small cavity.

infiltrate, and much later in the upper region. The dissemination can disappear without leaving traces or undergo retrogressive changes.

At any time after the formation of the first early infiltrate a superinfection may lead, always under symptoms of hypersensitiveness, to the formation of another infiltrate similar in origin, structure, and development. Redeker uses the term "sister infiltrate" for these infiltrations that appear suddenly in heretofore healthy parts of the lungs and very often on the contralateral side. (Figs. 9 and 10.)

SUMMARY

Pulmonary tuberculosis in the adult develops, therefore, according to Redeker and his school, always from the early infiltrate and extends either through dissemination by aspiration or through the formation of new infiltrates, which are caused by superinfections, to other parts of the lungs until the apical regions are involved. Thus we get the well-known clinical and x-ray picture of the chronic fibrocaceous ulcerative tuberculosis, with late and secondary changes in the apices.

The discovery of the early infiltrate is of great importance because it means that pulmonary tuberculosis very often begins in a region where it cannot be diagnosed by our methods of physical examination. Diagnosis in many cases comes too late; that is, when the tuberculous process has already spread to parts of the lungs which are accessible to auscultation and percussion. Our treatment very often sets in after the patient has already overcome the most critical period of his disease. Since success or failure of treatment and of all preventive measures depend, primarily, on our ability to diagnose the onset of pulmonary tuberculosis and to treat and to separate potential sources of infection, it follows that we shall have to use serial and regular x-ray examination as a routine method in the office and dispensary. As to therapy, the one conclusion that can be drawn at the present time is that, in the treatment of early infiltrates which do not undergo spontaneous retrogression or which show a tendency to progression, surgical measures (phrenic-

otomy or artificial pneumothorax) should be applied at an early date.

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For further references, see Redeker and Fishberg.

DISCUSSION

CHARLES C. BROWNING, M. D. (711 Merritt Building, Los Angeles).—Doctor Fischel has presented a valuable discussion of his subject, although I am unable fully to endorse all of his conclusions.

Primary infection may occur in different tissues of the body and if the primary infection is in the lung it may take place in any portion of the lung. Regional lymph node infections frequently occur as an immediate result of the primary infection. Most frequently these infections produce no symptoms, the amount of infectious material being insufficient. However, sensitization has occurred and later infections are more frequently followed by manifest symptoms, this again depending upon the degree of infection. Evidence exists that later infections may be exogenous or endogenous, probably more frequently the latter. These may also occur in any portion of the lung.

Doctor Fischel has called attention to the difficulties of early diagnosis of existing activity in some cases because it may "begin in a region where it cannot be diagnosed by our methods of physical examination." It is important to bear this in mind and in doubtful cases to keep the patient under observation for sufficient time to allow changes to occur which will permit a diagnosis of active tuberculosis or render it quite improbable that such exists.

When we recall that lymph nodes are frequently involved in the earlier infections; that many of these exist in the mediastinal, peritracheal and peribronchial areas; that the changes taking place in these produce few symptoms or signs, even by x-ray, until the elapse of considerable time; and that dissemination of infection from these areas is not infrequent, we are justified in making frequent examinations, including the use of the x-ray and tuberculin test. Negative x-ray should not be given too great consideration in the presence of suspicious symptoms, nor should negative tuberculin test, especially in the presence of anemic conditions.

✱

F. M. POTTINGER, M. D. (Monrovia).—Doctor Fischel has given a very interesting discussion of Redeker's theory of the nonapical localization of tuberculosis of the chronic type.

Redeker presumes a previously infected immunized host which suddenly finds itself reacting to moderately large reinoculating doses of bacilli. He assumes that the reinoculating bacilli are probably of exogenous origin. It is his contention that the first reinoculation takes place below the clavicle and that if the apex becomes involved it does so as a later extension. Distinct apical lesions, in contrast to the subclavicular ones, are supposed to be benign.

We have long taught that tuberculosis does not necessarily begin at the apex. We know that the primary focus can be found in any portion of the lung, as was so well shown by the work of Ghon, and as may be verified by finding calcified deposits in all parts of lungs of small children. Where the reinocu-

lation which starts the chronic disease shall take place has always seemed to me to be more or less accidental. Though favoring the upper half or third of the lung, we also find it toward the base.

It would be a mistake to accept this work of Redeker as establishing a particular form of tuberculosis or furnishing a proven rule for reinfection until it has received more study and more definite proof. Where serial examinations are made of chests at frequent intervals, as has been done in certain welfare clinics, it is surprising to see how at one time a fairly diffuse mildly exudative lesion will be found, unknown to the patient, which will undergo such complete resolution that it may not be found after a few months' time. A similar lesion in other instances may go on to an extensive active process. We assume that when the first type of lesion heals, as it often does by resolution, bacilli remain in the tissues, even though the x-ray fails to show traces of the process. Should a reinoculation take place in these areas it would be impossible to determine by any method that we now possess that the lesion was not a reactivation of the preceding infection. An endogenous source of infection seems to me to be far more probable than an exogenous.

I fear that the effect of the teaching that an apical lesion is a benign one is harmful. A mild apical lesion, in my experience, is a potential severe lesion and should be treated with utmost respect until healed.

I cannot believe that there is any difference in the process of healing according to the location of the lesion, except the difference in tissue in different locations and the difference in the mechanics of the respiratory mechanism. The same immunity reaction determines the outcome in all instances. It is well to have this subject presented to us that it may be thoroughly discussed.

✱

MAX ROTHSCHILD, M. D. (384 Post Street, San Francisco).—The important fact which is brought out in Doctor Fischel's excellent and interesting paper is, from a practical standpoint, his statement that in many cases the diagnosis of pulmonary tuberculosis is not made until the tuberculous process has already advanced. We have all seen a good many cases where the process does not involve the apices, but other parts of the lung, especially the infraclavicular area. In the great majority of cases, however, we hear the first abnormal breath sounds in the apices, notwithstanding Redeker's publications in this respect. I must agree with Doctor Pottenger that these apical involvements must not be underestimated, as they are by no means harmless.

If we look back on the continual changes in our viewpoints about many questions regarding tuberculous infections, not alone covering the primary foci and the spreading of the disease, but also covering questions of immunity, allergy or anergy, even classification, be it from a clinical or pathological standpoint, and especially treatment, we must admit that there exist possibilities for much confusion.

When it comes to the most important and practical question of all—that of the earliest possible diagnosis—I believe the correct immunobiological tests help us more than any physical or x-ray examinations, especially if at the same time we consider carefully the history of the patient and the subjective symptoms, which are usually so typical in the absence of other pathological conditions. At the height of a reaction, after such immunobiological tests, we notice a focal reaction in one of the apices more frequently than in all the other parts of the lungs combined.

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DOCTOR FISCHEL (Closing).—It was hardly possible to explain in a short paper the importance of Redeker's work, which has caused a more heated discussion in the German literature than any other discovery in the past two decades.

Redeker's views are supported by so much convincing evidence that they cannot be ignored. The subject should be discussed thoroughly, and I agree

with Doctor Pottenger that we should wait for more definite proof before we accept the newer teachings.

Redeker's theory may explain two very amazing facts which so far have received very little attention. One to which Douglas, Pinner, and Wolper (*American Review of Tuberculosis*, February 1929) call our attention is the small number of incipient cases, or rather cases with minimal lesions, which come under our observation in striking contrast to the numerous far-advanced cases which fill our sanatoria both private and public. The majority of patients with progressive and destructive pulmonary tuberculosis reach the far-advanced stage apparently in a much shorter time than could be expected if tuberculosis as a rule begins at the apex and spreads slowly and gradually toward the base. The discovery of the early infiltrate (regardless of its localization) with its sudden onset, its indefinite symptoms and its various developments, is so important because it demonstrates the difficulties of an early diagnosis and at the same time the necessity of immediate diagnosis and treatment. The fate of the patient is decided in a very short time and quite often, as in Case 2, the patient is in a far-advanced stage before the serious and progressive character of his disease is recognized.

The second fact is our inability to prevent in a great number of cases the development of a progressive form, and of tertiary chronic tuberculosis. Tuberculosis is compared with other pulmonary infections caused by low-grade infection which give us ample time to intervene. Nevertheless, with all our refined and super-refined diagnostic methods, the results obtained by early and often prolonged institutional treatment by specific therapy and surgical methods are very often more a prolongation of life and not a complete cure, and the questions therefore arise, Is our therapy in fact early treatment? Do we get the patient in the incipient stage of tuberculosis? Does not the early infiltrate, with its frequent rapid extension, necessitate a more energetic treatment during the allergic phase by phrenicotomy or early pneumothorax?

I fully agree with Doctors Rothschild and Pottenger that the apical involvement should not be underestimated. Benign as the apical lesion may be, it can always be the potential source of an endogenous reinoculation and should, therefore, be treated as long as constitutional symptoms are present.

COMBATING CONGENITAL SYPHILIS*

RECOGNITION AND TREATMENT OF THE DISEASE

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AND

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DISCUSSION by Donald K. Woods, M.D., San Diego; H. J. Templeton, M.D., Oakland; Phillip E. Rothman, M.D., Los Angeles.

IN the last decade the number of children suffering from congenital syphilis, seen by the practicing physician, has probably decreased considerably. This lessened incidence, if it occurs, can be explained by the fight against the disease in potential parents, by the increased knowledge the laity possesses in regard to the prophylaxis of syphilis, and by the marked extension of the work in prenatal clinics among the type of patients through which congenital syphilis is more often transmitted.

In the past three years, among about 5500 new

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patients who have come under our observation in a children's clinic practice, we have seen 103 cases diagnosed as having congenital syphilis. This makes the incidence of the disease very slightly less than 2 per cent for California children residing in the vicinity of San Francisco.

The fact that today nearly one out of every fifty children in clinic practice has visited upon him the sins of a previous generation shows that the problems of prenatal and of infant treatment are still important ones in social hygiene. One needs but to undertake the medical care of this distressing heritage of adversity in later childhood to appreciate fully the importance of early treatment in adult syphilis, and in the newly born of untreated adults.

RECOGNITION OF THE DISEASE

There are essentially three important aids in the diagnosis of congenital syphilis—the family history, the clinical evidence of the disease, and the serologic reactions.

If there is elicited a history in the mother of repeated spontaneous miscarriages, premature births, or stillbirths, syphilis should be suspected in the offspring. This disease is still probably the commonest single cause of fetal mortality, and a very common factor in the prematurity of infants. Of course, with the actual presence of syphilis established in the mother or father, the possibility of the disease in the children is obvious, and search must be made for it.

In most children's clinics it is neither practical nor possible to make the specific laboratory tests for the disease on every patient coming under observation, so those who are likely to see the disease must become familiar with the signs and symptoms or the absolute indications for making the tests that confirm the provisional diagnosis of syphilis.

SYMPTOMS AND LESIONS IN CONGENITAL SYPHILIS

The symptoms and lesions in congenital syphilis are many; the symptoms occurring in the disease may be due to other conditions, but the lesions themselves are usually characteristic. The presence of what conditions should lead one to suspect that a child is suffering from syphilis? An analysis of the findings in our series may help in answering this question.

Of the 103 cases in which we have had an opportunity to observe the presenting symptoms, forty-six were newly born infants. In thirty-one of these there was no clinical evidence of syphilis, the diagnosis being made on a history of infection in the mother, and a positive Wassermann reaction in the blood of the infant. This combination occurred in each of the thirty-one infants so diagnosed.

Of the fifteen infants with clinical evidence of syphilis eight presented only a single symptom. In three this single symptom was marked nasal discharge, or snuffles; in one bleeding from the umbilicus occurred; in another congenital heart disease was the only finding. In one pair of twins

prematurity occurred without other clinical evidence, and it was also evident in four of the infants who presented other findings. Scaly skin was seen in one newly born infant with no other symptom, but this sign occurred in three others with multiple lesions. Other findings noted among the newly born infants were a palpable spleen, two infants with mild hydrocephalus, two with secondary anemia, two with fissures, one with large blebs, and one with hemorrhages in the skin. In seven newly borns only, then, were multiple evidences of clinical syphilis recorded.

Twelve infants were observed between the ages of one and eighteen months, and one of these was free of symptoms. Of the total there were six that showed but a single symptom; one had a frontal bone gumma, two an epiphysitis (with a pseudoparalysis of the arm), and three had snuffles only. Among four in this group showing multiple lesions, there were two cases each of snuffles, palpable spleen, scaly skin, maculopapular rash, and anemia, and two were markedly underweight. There was one example each of mild hydrocephalus, fissures, and mucous patches.

LESIONS IN LATER CHILDHOOD

The children in later childhood, forty-five in number in this series, showed the greatest variety and multiplicity of lesions, as would be expected. This is the group, that, because of lack of specific treatment in infancy, show the distressing and debilitating lesions. In only eight of this group was the treatment of syphilis begun because of the history in the mother and a positive Wassermann reaction obtained from the blood of the patient. In five children there was a single presenting symptom; in two this symptom was markedly carious teeth; in each of three others, nasal atresia, frequent nose-bleeds, and an infection of the lacrymal sac were noted. In thirty-two patients, or approximately 75 per cent of this group in which treatment was delayed until infancy had passed, multiple lesions occurred, in many causing deformities and irreparable damage to the mentality and vision, and fastening on them for life the stigmata of the disease. The most constant symptom in this group was defective vision; fourteen of the thirty-two patients, or 43 per cent, had lesions which resulted in impairment of sight. Eight had corneal opacities (interstitial keratitis), and there were seven cases of strabismus, five of chorioretinitis, four of optic atrophy, two of iridocyclitis, and two with defective pupillary reaction.

There were eight children in this group who were mentally deficient, and others with subnormal intelligence quotients. Three were juvenile delinquents, and five had speech defects. Eight patients showed general adenopathy, and eight markedly carious teeth. There were six cases showing typical Hutchinson's teeth, and five others with atypical forms of enamel deficiency. Five patients showed thickening of the bone cortex of one or both tibiae (saber-shins). There were four cases each of marked underweight, of palpable spleen, and of nasal obstruction with atresia; three cases each of enlarged liver, hemi-

plegia, and mild hydrocephalus. Two patients in this group had frequent epistaxis, and two were deaf-mutes. There was a single instance each of vitiligo, tenosynovitis, laryngitis, congenital heart disease, hypoplastic finger nails, rhagades, indolent ulcers, Fröhlich's syndrome, and hydrarthrosis (the last mentioned case with a positive Wassermann reaction from fluid from the knee). Of such a commonly mentioned condition in the textbooks as Hutchinson's triad there was only a single instance. Of typical Moon molars and Carabelli's tubercle there were none seen, although careful search was made for these signs. In our entire series of 103 cases there was not an example of any congenital malformation (except a single case of congenital heart disease) such as the laity commonly associate with syphilis. An entire absence of cases of infection of the heart was noted, and no cases of aortitis were diagnosed, although a considerable number of roentgenographs of the chests were taken on the older children.

BLOOD WASSERMANN REACTION

The blood Wassermann reaction was positive some time during the course of the disease in 101 of our patients. In one of the two infants with a negative blood Wassermann the spinal fluid was positive in a one-year-old girl with convulsions and epileptic attacks. The other case was an infant having a negative blood Wassermann reaction, but born with large bullae, and with a family history of syphilis, the mother having a positive blood Wassermann reaction at the time of the infant's birth. The lesions of this patient healed at once on the usual treatment.

In none of the forty-six newly born infants was the spinal fluid examined until after the blood Wassermann reaction had become negative, and in none of the sixteen in which it was analyzed was the Wassermann reaction positive. Of the twelve older infants, spinal fluid tests were performed in eight patients, and in three of these, or thirty-seven and one-half per cent, the Wassermann reaction was positive. A paretic colloidal gold curve was obtained in one of these infants with a negative spinal fluid Wassermann reaction, but with a positive reaction in the blood. Twenty-five of the forty-five older children submitted to spinal punctures, and in six, or twenty-four per cent, a positive Wassermann reaction was obtained. In one of the six there was a paretic colloidal gold curve, and another had the symptoms of paresis with a suggestive curve.

TABLE 1.—Shows Incidence of Race in Mothers of Patients

American	42
Mexican, Spanish, Portuguese	23
Philipino	8
Negro	5
Chinese	5
Russian	4
Italian	3
Danish	3
Japanese	3
Greek	2
French	2

THE PROPHYLACTIC TREATMENT

The general prophylaxis of congenital syphilis is intimately related to the educational, social, and medical control of the transmission of adult

syphilis. Adequate treatment of infected adults who are potential parents also goes far toward limiting the incidence in children. Treatment of pregnant women with syphilis not only lessens the number of miscarriages and spontaneous abortions, but also often makes possible the birth of an uninfected baby. This prenatal treatment also minimizes the severity of the fetal infection, and allows for an easier cure by regular therapy in early infancy. Dr. H. E. Alderson, in the Stanford Medical School clinic for dermatology and syphilis, has found, in the treatment there of syphilis in pregnant women, that therapy started before the third month of gestation, and adequately followed, results in practically all of the offspring being born free of the disease. If the treatment be started by the fifth month, it may result in having infants born free of syphilis, but such chances are diminished if treatment is delayed after this time.

THE TREATMENT OF INFANTS AND CHILDREN

The literature on this whole subject is voluminous. For an excellent review the reader is referred to an article by McBride.¹ Schussler² in 1925 reported the results of intensive intravenous therapy of congenital syphilis in Stanford clinic.

Arsenic in some form is properly considered the most important single item in the list of antisyphilitics in current usage. Sulpharsphenamin was chosen as the form of arsenical for treating congenital syphilis in our patients. It has a slightly higher arsenic content than neosarsphenamin, it is probably a more potent antiluetic preparation, and it may be given intramuscularly with little irritation, thereby greatly facilitating the process of administration. We have, however, used sulpharsphenamin intravenously in the treatment of a few of the Wassermann-fast cases in later childhood. This was done because there had been much medicine deposited, with trauma resulting to the gluteal muscles, rather than because of the belief that the intravenous administration itself heightened the therapeutic effect of the drug. It should not be used in any form, however, in beginning the antiluetic treatment when severe eye inflammations are present, or in case of optic atrophy.

Mercury and bismuth are valuable metals in the treatment of syphilis, and should be employed. We have used mercury in the form of mercuric chlorid, and bismuth as bismuth phenylformitate, both suspended in oily bases. Mercury ointments have been given for rubs. Potassium iodid has been used routinely in most of the older children. It is thought advisable to push mercury medication when eye or bone lesions are present.

DOSAGE

Sulpharsphenamin.—In infants we began treatment with fifteen milligrams per kilogram of body weight, and increased to thirty milligrams during the first eight injections. In older children rapid

fractional increases to fifteen or twenty milligrams per kilogram of body weight were used.

Bismuth.—Fifteen milligrams per kilogram of body weight of the bismuth phenylformate were used in infancy. Doses proportional to the child-adult weight ratio were used in older children.

Mercury.—Of this metal, five milligrams per kilogram of body weight was used, in the form of mercuric chlorid, for treating infants, while for older children the dosage was made proportional to the child-adult weight ratio.

Potassium Iodid.—We employed one drop of the saturated solution per year of age, three times a day, by mouth.

With the previously mentioned exceptions, all medication has been given intramuscularly. The technique of gluteal injections is of considerable importance in the avoidance of complications of treatment. Skin puncture should be made with the patient prone, and within the upper and outer quadrant of the rounded buttock. One should be sure the needle end is well within the muscle, though touching bone or injecting near periosteum is to be avoided, as is deposition in the subcutaneous tissues. The latter may cause considerable fat necrosis. Before injecting the oily suspensions it is well to insert the unattached needle and to wait a few moments, to be sure that a vascular channel has not been entered. All intramuscular injections should be given slowly so that the tissues are not ruptured. They should also be followed at the end by the introduction of a small amount of air to empty the needle, which should then be withdrawn slowly while pressure from the side is made to assist in closing the needle tract properly. Alternate sides should be used for successive injections.

Leading authorities advocate continuous intensive treatment of syphilis and results justify this type of therapy. Our plan has consisted of treatments twice weekly, including eight injections of sulpharsphenamin, eight of bismuth, and eight mercury rubs given at home, which completes one course. On the return from the four weeks at home, after the rub period, the blood Wassermann reaction is rechecked and the second course begun. No patient is dismissed as temporarily cured (i. e., for semiannual or annual checks on the blood Wassermann reaction) until there have been two successive negative blood tests and a negative spinal fluid examination reported.

As in other series of clinic syphilitics, the difficulty of convincing the parents of the importance of this treatment routine, in spite of the child's reluctance, is quite apparent in a comparison of the number of cases seen with those adequately treated. This discrepancy is also augmented by the fact that many of the families moved to unknown places during the course of treatment. The solution of such problems is chiefly in the domain of the public health nurse and other workers in social hygiene, and the importance of their solution cannot be overemphasized. The problems are related to education of the parents, and to careful follow-up work by social service workers. Our work should not be considered as even near-

ing success until the number of adequately treated cases approaches those originally seen.

TABLE 2.—Shows Results of Treatment

Newly Borns.	
Total treated	25
Negative after 1 course	24
Negative after 2 courses	1
Infants.	
Total treated	6
Negative after 1 course	0
Lost after 1 course	2
Lost after 2 courses	3
Lost after 3 courses	1
Children.	
Total treated	26
Negative after 1 course	4
Still treating after 1 course	4
Negative after two courses	1
Lost before completing 2 courses	7
Still treating after second course	3
Negative after 3 courses	1
Negative after 4 courses	1
Lost after 4 courses	1
Still treating after 5 courses	3
Negative after 6 courses	1

Table 2 indicates that the establishment of negative blood Wassermann reactions is accomplished without difficulty in infants when treatment is started in the newly born period. This emphasizes the importance of diagnosis at birth, or in the mother during the prenatal period. Many, but not nearly all, of the mothers of these infants had a moderate amount of treatment during their pregnancies.

None of our cases in later infancy were adequately treated. We found that the type of parent who would allow the disease to become well advanced before seeking treatment, was not the type who would be properly enthusiastic for the necessary continuance of treatment.

Of the fifteen cases fairly adequately treated in later childhood, four were negative after one course, four others negative after two, three, four, and six courses. Six might be classed as Wassermann-fast, though two of these had most of their treatment elsewhere, and four are serologically improved, two markedly so.

In no case under treatment did the signs or symptoms of syphilis become worse.

Of the nine cases with central nervous system infection three were adequately treated, the others being lost, or having only recently come under observation. None of the three had serological or clinical evidence of either tabes or paresis, but in all the spinal fluid tests became completely normal as the result of systemic treatment alone. It is certain, however, that many children with central nervous system infections would require intraspinal treatment if hope were to be had for improvement.

The removal of such focal infections as infected tonsils and decayed teeth probably enhances the value of the drugs in treatment. This fact should constantly be borne in mind, and patients should be frequently examined, as they are probably more subject than normal children to other forms of disease.

COMPLICATIONS OF TREATMENT

Some of the complications of treatment were the direct result of improper therapeutic technique. One needle was broken off within the buttock, necessitating incision for successful removal.

Six abscesses or moderate-sized areas of inflammatory induration developed. Two occurred in the newly born group, one of which was incised and a bismuth sinus established which required later surgical incision and curettage under general anesthesia. The other broke through the skin spontaneously, discharged and healed after one month. Four occurred in older children, three subsiding with compresses (sterile pus obtained by needle from one). One was opened, pus showed no growth on culture, and healing rapidly ensued. Two of the total of six such reactions followed mercury injections, the remainder (the more severe ones) occurred immediately after sulpharsphenamin injections, following a bismuth course.

Two cases developed mild gingivitis; one followed bismuth, but showed no bismuth line; the other followed eight mercury and eight bismuth injections. In the latter instance there was a moderate bluish discoloration of the lower anterior gums.

Seven patients evidenced a toxic reaction to sulpharsphenamin. There were two mild cases of dermatitis not generalized, and two of mild generalized dermatitis with very slight exfoliation, one of these having two attacks. There was one case of severe dermatitis with fever, swelling of the eyes, and a moderate amount of pus in the urine, and another instance of severe dermatitis with marked exfoliation, and moderate fever. The seventh patient was the only infant showing a reaction. This baby developed a mild dermatitis (without exfoliation) after six injections of sulpharsphenamin, had fever of 102 degrees, became drowsy, and developed twitchings. Fluids were forced parenterally and by mouth, sodium thiosulphate was given by mouth and intravenously. The baby was well in ten days. All of these cases, except the last, were later given sulpharsphenamin without further difficulty, although such reactions are considered by many to contraindicate the further use of any arsenical or, at least, the form responsible for the toxic action.

The following table lists the mortality which occurred in this series:

TABLE 3.—Mortality

Case No.	Age	Cause of Death	Length of Time After Injections	
			First	Last
1	10 hours	Subdural hemorrhage	No treatment	
2	14 days	Unknown (bronchopneumonia?)	12 days	4 days
3	22 days	Unknown (possible sulpharsphenamin reaction)	15 days	2 days
4	24 days	Prematurity	3 days	3 days
5	8 weeks	Membranous enteritis Empyema, streptococci Subdiaphragmatic abscess	13 days	2 days
6	3 mos.	Otitis media Bronchopneumonia Pseudoleukemic anemia, infantum	3 mos.	1 mo.
7	5 mos.	Bronchopneumonia	4½ mos.	1 mo.
8	5½ mos.	Bronchopneumonia	5½ mos.	1 week
9	9 mos.	Bronchopneumonia	4 mos.	2 weeks
10	2 years	Septicemia, nonhemolytic streptococci Mastoiditis	2 year	15 days

CONCLUSIONS

1. Individuals with congenital syphilis still constitute about 2 per cent of those seen in a children's clinic practice.

2. The important aids in diagnosis are the family history, the clinical evidence, and the serological reactions.

3. Many infants with a history of syphilis in the mother, and with a positive blood Wassermann reaction, present no signs. These patients should be treated the same as if lesions were obvious.

4. In our series snuffles, eye lesions, dental defects, and mental deficiency were common; saber-shins, nasal atresia, and nose-bleeds were relatively common; heart disease and Hutchinson's triad were rare; Moon molars, Carabelli tubercles, aortitis, and congenital anomalies commonly associated with syphilis (by the laity) occurred in none.

5. A combination of sulpharsphenamin, bismuth, and mercury, in relatively large doses given twice weekly offers a rapid serologic cure in practically all infants.

6. The disease in a fair proportion of older patients yields to similar therapy. The percentage of cures in this group would be increased by intensive work in social service.

7. Most severe complications of treatment may be avoided by careful attention to technique and dosage.

8. The mortality in our series was about ten per cent. The immediate cause of death was not related to the treatment except possibly in one case.

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DISCUSSION

DONALD K. WOODS, M.D. (Fifth and Laurel Streets, San Diego).—The paper by Doctor Dickey and Doctor Sutton is of particular value because of the brief and specific account of the therapy and results in the cases which they handled. Too many papers are rather indefinite on these points and are, therefore, of doubtful value to the average man. I believe that their report of finding one out of every fifty clinic cases infected with syphilis should call our attention to the necessity of routine Wassermann tests on all clinic cases. It also seems to me that the same supervision should be given to a chronic contagious case as to an acute one. I believe the day is not far distant when isolation and cure of these cases will be demanded.

I believe the paper indicates that cure is possible where the cases are kept under observation. The welfare of the individual and of the race demand that this continued treatment be made an obligation to extend until a clinical cure is obtained. The greatest mistake in handling syphilis in children is emphasized by this splendid paper—that is, medication is given in inadequate dosage, and there is a failure to persist in the treatment until the clinical and serologic cure is made certain.

I do not think we need to change our treatment of this disease at present unless some valuable addition is made through research. With the drugs and expe-

rience we have, cures can be produced in practically every case if the two principles emphasized in this paper are followed, namely, adequate dosage and continued medication.

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H. J. TEMPLETON, M.D. (3115 Webster Street, Oakland).—The clinics of the Baby Hospital in Oakland are devoted exclusively to the care of children and infants. The only exception to this rule is that the syphilis clinic treats all of the syphilitic pregnant women seen by the obstetrical department. This is done because we feel that the golden hour of opportunity for treating congenital syphilis is throughout the entire pregnancy of the syphilitic mother.

We have given these pregnant women rather long courses of nearsphenamin and short courses of bismuth or mercury, believing that the arsenicals are less nephrotoxic than are the heavy metals. We aim to so adjust our courses as to have our last course of nearsphenamin extend throughout the last two months of pregnancy. For it is at this time that the energetic spirocheticidal action of the arsenical is especially needed. Although our series is small, we have not seen evidences of syphilis in any of the infants born of our adequately treated syphilitic mothers.

We believe that bismuth is of great value in combating congenital syphilis, and have had one striking example of its efficacy. A group of six children had received long-continued treatment with sulpharsphenamin and mercury and had remained Wassermann positive. They could be classified as "Wassermann-fast." They were all then given a course of ten injections of potassium bismuth tartrate at the end of which course all had become Wassermann negative. We do not deduce from this striking result the fact that bismuth is equal to sulpharsphenamin, but rather that it is of great value in those cases in which the spirochetes have become arsenic resistant. We believe that alternating courses of mercury, arsenic, and bismuth should be given, thus attacking the spirochetes through their different chemoreceptors.

We used some bismudol in our clinic, but abandoned it because of its extremely slow rate of absorption. The buttocks of six children who had received it were x-rayed and very little evidence of absorption could be found after 5, 49, 161, 161, 175, and 386 days, respectively. Most of our work has been done with potassium bismuth tartrate.

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PHILLIP E. ROTHMAN, M.D. (833 Pacific Mutual Building, Los Angeles).—Doctor Dickey's and Doctor Sutton's excellent results with sulpharsphenamin lend additional evidence to the previous reports of the efficacy of this drug in the treatment of prenatal lues. It has long been known that arsenic is well tolerated by children. Nevertheless, occasional cases of dermatitis are seen and at least one case is on record of a child who developed granulocytic aplasia of the bone marrow with purpuric manifestations and subsequent death following the use of sulpharsphenamin. In 1925 a new arsphenamin synthetic, bismuth arsphenamin sulphate, was introduced by Dr. George Raiziss and has been used at the suggestion of Doctor Chambers in the Children's Hospital of Los Angeles for over a year. The results will be published later, and although it is far too early to establish any final conclusions, the clinical and serologic results to date are superior to other methods of treatment. Moreover, no cases have been recorded in children of severe anemia, dermatitis exfoliativa, or hemorrhagic encephalitis, following the use of this drug. The dosage has been worked out clinically as follows: Birth to six weeks, .005 gram; six weeks to one year, .05 gram; one year to two years, .1 gram; two years to fourteen years, .2 gram. It is administered once weekly up to the age of three months and twice weekly thereafter. One course consists of twenty injections and is followed by a two weeks' rest period. Local abscesses have occurred with about the same frequency, as in sulpharsphenamin administration. Nitritoid crises have been easily controlled with the

so-called Bezredka plan. This consists in administering 1/300 grain of atropin sulphate subcutaneously to susceptible children. Twenty minutes later one-tenth of the total dose of arsphenamin used is injected and after a similar interval of time the rest of the drug is given.

The authors were fortunate in being able to re-administer arsenic to those patients who manifested a toxic reaction, particularly a dermatitis. This procedure is not without danger, especially in those individuals with dermatitis exfoliativa of the edematous type. Not always, but occasionally, even the most minute amount of arsenic will provoke a severe exacerbation.

It has been repeatedly demonstrated that the best therapeutic results are obtained in the patients who are treated as soon after birth as possible. Since the Wassermann reaction is occasionally negative during the first few months, a positive diagnosis can often be made during this period by the radiographic appearance of the long bones. The shadows are absolutely characteristic and should not be confused with rickets, scurvy, or tuberculosis. If positive x-ray evidence of lues is present, treatment should be instituted regardless of the outcome of the Wassermann test.

THE ROENTGEN RAY IN THE DIAGNOSIS OF PRIMARY CARCINOMA OF THE LUNG*

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ALTHOUGH primary carcinoma of the lung is not a common disease, it has been discussed extensively in the literature. Adler's monograph in 1912, which was a masterly review of 374 cases from the records, aroused wide interest and stimulated further publications. Admitting the relative rarity of the disease, there is reason to believe that its incidence is increasing. Certainly broadened clinical knowledge, the employment of the roentgen ray as a routine, and the application of bronchoscopy have combined in the discovery of a greater proportion of cases. At all events, the lesion occurs with sufficient frequency to warrant its consideration in every roentgenologic examination of the chest or, at least, when the manifestations are not typical of other disease. As indicative of its frequency, it may be noted that during the last four years the diagnosis of primary carcinoma of the lung was made in eighty-five cases observed at The Mayo Clinic. Diagnostic proof in these cases rested variously on necropsy data, tissue removed at bronchoscopy, and clinical and roentgenologic data.

From the standpoint of morbid anatomy, four types of the disease are commonly recognized: nodular, lobar or diffuse, infiltrating and miliary. This classification is somewhat incongruous in that it is based variously on the situation of the foci and on their number, form and definition. Further, multiple nodular and miliary varieties are produced by metastasis and are complications rather than types. Inasmuch as the primary growth arises either in the parenchyma or in a

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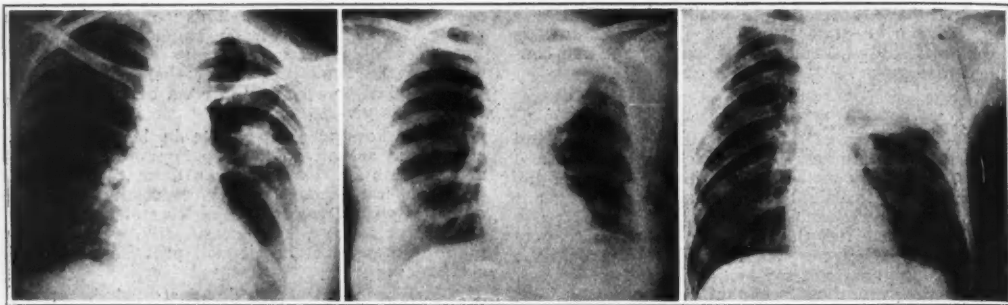


Fig. 1.—Early primary nodular carcinoma in parenchyma of left lung, with metastasis to brain.

Fig. 2.—Large nodular malignant growth of left upper lobe.

Fig. 3.—Large primary malignant growth involving left upper lobe with erosion into bronchus. The patient coughed up tissue which proved to be highly malignant carcinoma.

bronchus, it is more convenient from the roentgenologic viewpoint to recognize only two main varieties, the parenchymal and the bronchial. Histologically the growths comprise adenocarcinomas, highly undifferentiated or medullary carcinomas, and simple or squamous-cell epitheliomas. Complications, which are common and affect the roentgenologic picture, include metastasis to other parts of the lung, vascular congestion, atelectasis, bronchiectasis due to filling of the bronchi with blood or secretions, accumulation of fluid in the pleura, infection resulting in abscess, and central necrosis causing cavitation.

SYMPTOMS OF CARCINOMA OF THE LUNG

The principal symptoms of primary carcinoma of the lung are cough, either dry or productive, hemoptysis, pain, dyspnea, and loss of weight.³ These are encountered in diverse combinations and degrees of severity, depending on the duration of the disease and its site (bronchial or parenchymal). In the earlier stages the clinical picture of the two main types is more constant. Cough is especially harassing and persistent in the bronchial type, and although sputum is seldom profuse it is usually present and commonly blood-tinged. Approximately half of the patients with bronchial carcinoma have complained of dyspnea; in some cases the dyspnea is very distressing and apparently out of proportion to the amount of lung affected by the lesion. Loss of weight is relatively constant and although pain is usually present it seems to be complained of less than the cough. About a third of the patients with bronchial malignancy had had fever, apparently due to secondary infection, and a few had complained of hoarseness. The most common physical sign in the bronchial type is partial or complete stenosis of the bronchus. Pleural effusion will be found in the late cases when the disease attacks the pleura, and leukocytosis will be manifest if secondary infection occurs. Metastasis to bones, cervical lymph nodes, and brain is not an uncommon complication, especially metastasis to the brain.⁴ In the parenchymal type the clinical evidence tends to be less pronounced and to appear more slowly. Until the lesion erodes into or compresses a bronchus or involves the pleura, it does not give evidence of its presence. Loss of weight is the most constant sign in this type,

and pain is probably the most common sign. The pain is rather vague, and is difficult to localize and describe. Cough signifies the invasion of the pleura or, more often, the invasion of a bronchus. Dyspnea indicates an appreciable accumulation of fluid. Metastasis is frequently noted in the supraclavicular nodes. General examination is often negative or inconclusive. On the whole, nothing distinguishes carcinoma clinically from a myriad of pulmonary affections, and the only suggestive circumstances may be that the patient is of cancer age and the loss of weight is more pronounced than would be expected from the clinical history.

PARENCHYMAL TYPE OF CARCINOMA

My experience in these cases leads me to believe that carcinoma of the parenchyma of the lung starts as a more or less spherical nodule (Fig. 1), homogeneous but not very dense, lying isolated in apparently normal parenchyma, from which it is not sharply demarcated. Diverse opinions have been expressed as to the site preferred, but it may occur in any part of any lobe, except at the apex. As the nodule increases in size (Figs. 2 and 3), its borders may coincide in part or largely with the borders of the lobe; it may become a dense, irregular, infiltrating mass, or it may break into a bronchus and become indistinguishable from primary bronchial carcinoma.

Prior to the advent of complicating phenomena and as long as a single nodular or massive shadow in a lobe dominates the picture, primary carcinoma should at least enter into diagnostic consideration although many other conditions also should be canvassed. Among the latter, metastasis is one of the most significant, but the metastatic nodule is clear-cut, whereas the primary nodule usually has an ill-defined, infiltrating margin, at least in some part of its periphery. Metastatic nodules also are usually multiple at the time of discovery. Cysts, hydatids, benign tumors and gummas are rare, usually single, and have sharp noninfiltrating outlines. Simple abscess is an extremely confusing simulant, but it usually lacks the homogeneous density of the typical malignant nodule and its shadow is likely to exhibit central thinning or diffuse mottling. Tuberculosis of the nodular or lobar pneumonic type is characterized by a multiplicity of lesions and apical involvement. Although the clinician might reasonably

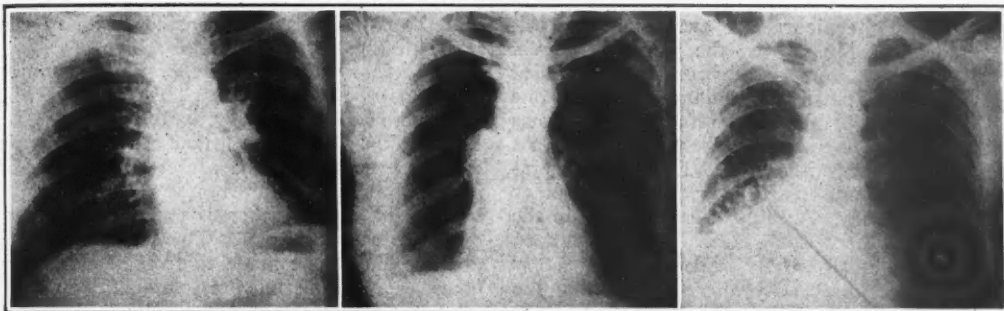


Fig. 4.—Adenocarcinoma (graded 4) of left main bronchus with some atelectasis.

Fig. 5.—Adenocarcinoma (graded 1) of right bronchus with almost complete obstruction.

Fig. 6.—Squamous-cell epithelioma (graded 3) of right lower lobe bronchus. Patient had received lipiodol injection before coming to the clinic.

confound tuberculosis and primary carcinoma, the roentgenologist should seldom have difficulty in distinguishing them.

In individual instances pneumonia, bronchiectasis or effusions may enter into the differential diagnosis, but they usually have the characteristics of inflammatory disease and the shadows are less homogeneous than that of lobar carcinoma. Atelectasis due to bronchial obstruction from various causes is shown as a veil-like shadow in which the texture of the lung can be distinguished.

BRONCHIAL TYPE OF CARCINOMA

The bronchial type of primary carcinoma in the early stages is characterized fundamentally by an adventitious shadow at the hilum of the lung. The tumor is unilateral, is centered accurately at the hilum, and has an infiltrating edge. The site of the lesion is fairly constant, namely, opposite the space between the sixth and eighth ribs, commonly at the seventh rib posteriorly (Figs. 4 and 5). Often, the shadow is roughly triangular, with the apex directed outward and with strand-like processes extending along the normal markings of the bronchial tree. Very early it may be perceptibly separated from the mediastinal margin; as the tumor grows this line of separation is lost. Besides the shadow of the tumor itself, bronchial obstruction is likely to occur early in the course of the disease and be evidenced by an area of atelectasis in the lobe supplied by the affected bronchus with its typical gauze-like shadow which does not completely conceal the markings of the lung. The secondary signs of bronchial stenosis and the resulting atelectasis are: elevation of the diaphragm on the affected side and displacement of the heart and mediastinal structures toward that side; there may also be slight collapse of the ribs. Occasionally the characteristic appearance of the atelectatic lobe may be obscured or complicated by the shadow of the lesion or accompanying obstructive bronchiectasis. In such cases the secondary signs of atelectasis are very helpful in sustaining a diagnosis of bronchial stenosis. If the bronchial growth is small or largely hidden in the mediastinum, the atelectatic signs may be the sole obvious evidences of disease. In certain cases, and especially if obstruction has existed for a considerable time, bronchiectasis occurs and is manifest typi-

cally in a fan-shaped, honey-combed shadow. Thus a mass shadow at the hilum, atelectasis and bronchiectasis, singly or in various combinations, constitute the basic manifestations of bronchial carcinoma.

It follows, therefore, that all other conditions which give rise to any of these three phenomena may require to be taken into account in the differential diagnosis. Fibrosis resulting from chronic bronchitis or pneumoconiosis is most pronounced in the region of the hilum, but it is bilateral and this circumstance excludes bronchial carcinoma. Enlarged lymph nodes incident to leukemia, lymphoblastoma, Hodgkin's disease, and infective or malignant abdominal disease, are occasionally largely or wholly unilateral, but the shadows have a smoothly rounded contour unlike that of a bronchial carcinoma. Rarely, lymphoblastoma is infiltrative, its shadow margins are indefinite, and distinction from bronchial carcinoma is difficult. Other lesions simulating shadows of the hilum include aneurysm, benign new growths, gumma, mediastinal abscess, Pott's disease, and tumors of the spine, but in most cases the shadow is relatively smooth. Nonopaque foreign bodies in the bronchus with abscess formation and atelectasis may produce shadows similar to those seen in primary carcinoma of the bronchus with bronchial stenosis. Finally, tuberculous nodes of the hilum cannot be ignored. The decisive test by which all simulants can be eliminated and the diagnosis of bronchial carcinoma confirmed is the bronchoscopic examination.

COMPLICATIONS MASKING PRIMARY CARCINOMA IN ROENTGENOGRAMS

Thus far I have reviewed briefly the roentgenologic signs of primary carcinoma, both parenchymal and bronchial, in the early and relatively uncomplicated stage. Even at this stage the multitude of simulants makes the diagnosis difficult. Later, extensive complications may so mask the underlying disease as to make it virtually impossible to identify it from the roentgenogram alone. Mottling, diffuse shading, streaky shadows and rarefaction resulting variously from congestion, atelectasis, bronchiectasis, abscess, or rarely from cavitation, together with the shadow of the original lesion, sometimes produce an indecipherable record. Two other common factors, metastasis

and fluid in the pleura, are even more concealing and confusing. Often the primary growth, whether bronchial or parenchymal, is accompanied by metastatic nodular or miliary lesions in one or both lungs. Although the fact of metastasis is obvious, the examiner is likely to assume that the primary focus is extrathoracic, because pulmonary carcinoma usually originates in other parts of the body. Accumulations of fluid in the pleural sac are not at all rare. If the amount of transudate is small or only moderate, the primary signs are not appreciably altered, but often the cavity is completely filled, and the entire lung is obscured by a dense shadow. In the latter condition, unless the patient is reexamined after paracentesis, the nature of the pulmonary disease cannot be determined.

In short, although the roentgenologist will often be the first to discover signs of pulmonary carcinoma or vaguely suspect its presence, he can seldom make a positive diagnosis without clinical aid. On the other hand, the clinician will usually require the stimulus of the roentgenologic report to orient his investigations, and he will certainly need the help of the roentgenologist and the bronchoscopist in making the final diagnosis. When the roentgenogram reveals the shadow of a mass, either in the hilum or in a lobe, which cannot confidently be attributed to one of the more common intrathoracic diseases, primary carcinoma of the lung is to be thought of, especially if the patient is of cancer age, if weight loss is extreme, and if the history is atypical. If the mass is in the hilum, bronchoscopy is indicated.⁵

In cases in which either atelectasis or bronchiectasis is the most striking feature in a roentgenogram of the chest, the corresponding hilum should be scanned for evidence of bronchial carcinoma (Fig. 6).

In cases in which fluid conceals all or most of the pulmonary field and an affirmative diagnosis of the underlying lesion cannot be made with confidence, roentgenologic examination should be repeated after paracentesis, for the lesion may be a carcinoma.

METASTASIS

Malignant disease of the lung often produces metastasis in the brain. I have seen two patients who came to the clinic primarily for treatment of an intracranial lesion. In both instances a casual roentgenologic examination of the chest, made as a routine, revealed the typical manifestations of primary malignant lesion. As a result of this experience I feel justified in urging examination of the chest as a routine in cases presenting symptoms localized in the brain, as they may be due to metastasis to the brain from carcinoma of the lung.

If pulmonary metastasis, either nodular or miliary, is obvious roentgenologically, and this report is fully warranted, it must not be assumed too hastily that the primary growth is extrathoracic, although it usually is. The examiner should consider the possibility of a primary focus in the lung, the roentgenogram should be inspected for a shadow of unusual form and size,

and the clinician should consider primary carcinoma of the lung among alternatives.

Thus far, with few exceptions, carcinoma of the lung, especially the bronchial variety, has been a hopeless condition. Harrington,² however, is of the opinion that if the lesion can be recognized early, lobectomy may be performed, thus affording a more optimistic prognosis. Certainly these patients have everything to gain and nothing to lose by such a procedure. Therefore, every effort possible should be made to recognize the carcinoma early. The most essential factor in the diagnosis is keeping the disease in mind.

The Mayo Clinic.

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THE PHYSIOLOGIC AND PATHOLOGIC SIGNIFICANCE OF THE LIPOCHROMES*

By CHARLES L. CONNOR, M. D.
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LIPOCHROMES are yellow to red pigments which occur mostly in plants, the most important of which are carotin, xanthophyll, and lycopin. The first of these is most abundant in carrots and green vegetables; the second, in yellow leaves; and the third is the red pigment of tomatoes. The name "lipochrome" has been given to them because of their almost constant association with lipoids in the animal body, and because they have in general the same characters as regards solubility and extraction. They are, however, in no sense lipoids. They are unsaturated hydrocarbons or oxyhydrocarbons, cannot be produced from lipoids, and do not combine with fatty acids. They are relatively inert chemically; are soluble in fats, unite with the halogens and oxygen, and can be extracted from tissues by petroleum, ether, chloroform, and other fat solvents. Upon oxidation they become colorless.

Their function, even in plants where they are most abundant, has not been determined. They are almost always associated with chlorophyll, but remain in leaves after the chlorophyll has disappeared. They are sometimes the only pigments in etiolated leaves, and here seem to take the place of chlorophyll. They probably, in plants, have a respiratory function, or have to do with photosynthesis in some way.¹

* From the Department of Pathology, University of California Medical School.

¹ Read before the Pathology and Bacteriology Section of the California Medical Association at the Fifty-Eighth Annual Session, May 6-9, 1929.

RÉSUMÉ OF EXPERIMENTAL WORK ON LIPOCHROMES

It has been rather definitely shown by Palmer,² van den Bergh and Snapper,³ and others that lipochromes appear in the animal body only after the ingestion of food containing carotin or xanthophyll. It cannot be demonstrated that they have any function in animals, or that, indeed, they are of any particular importance. Chickens deprived of xanthophyll continue to grow in the same manner as when fed well-colored food (Palmer and Kempster).⁴ Drummond⁵ reported the failure of pure crystalline carotin, fed at the rate of 0.003 per cent of the ration, to replace vitamin A in the diet of rats. Steenbock, Boutwell, and Kent⁶ noted the close association of carotin and vitamin A in plants, but stated that vitamin A was not carotin. Later Steenbock⁷ advanced the provisional assumption that this vitamin is one of the carotinoid pigments, and in still later papers by Steenbock and his associates,⁸ they show that yellow pigments are almost inseparable from vitamin A of plants. Palmer⁹ discusses this work critically, and believes the evidence in favor of the identity of carotin and vitamin A is not sufficient. In fact Steenbock, Sell, and Buell¹⁰ could not obtain the same correlation between vitamin content and pigmentation when comparing animal products such as cod-liver oil, butter fat, perinephric fat, and egg yolk. Drummond and Coward¹¹ noted this lack of association of pigment content and vitamin A content in a large number of fats and oils. Colorless dog fat and colorless perinephric fat were rather rich in vitamin A. Palmer and Kennedy¹² found that albino rats grew and reproduced normally on diets in which 5 to 9 per cent of ewe milk fat (containing 0.00014 per cent carotin) furnished the vitamin A, and that growth was normal when carotinoid-free egg yolk from hens upon a carotinoid-free diet furnished the vitamin A. Coward and Drummond¹³ found that the synthesis of vitamin A in plants increases as the chlorophyll content increases. They also demonstrated little, if any, fat-soluble vitamin in yellow seedlings and red seaweeds, both of which contained abundant carotinoid pigment, but no chlorophyll.

Wiehuizen¹⁴ and others noted the low lipochrome content of the blood serum in human beriberi, and stated that vegetables with a high lipochrome content also have a high antiberiberi value. McCarrison¹⁵ also noted that highly colored butter fat gave greater protection against edema of the adrenals of pigeons fed on autoclaved rice than poorly colored butter. The suggestion is then made that one of the fractions of vitamin B may be a lipochrome. This is further suggested by Underhill and Mendel,¹⁶ who cured a pellagra-like disease in dogs (a deficiency disease reported by Crittenden and Underhill¹⁷ in 1917) by adding colored egg yolk, highly colored butter, carrots or, finally, pure crystalline carotin to the diet. Goldberger,¹⁸ however, stated that carrots contain relatively little substance that will prevent black tongue in dogs, and will not prevent human pellagra.

REPORT OF AUTHOR'S EXPERIMENTAL WORK

My own experiments have been inconclusive. Twelve guinea-pigs upon a carotin-free diet lost weight rapidly and all died (except two which were killed) in a period of a month. The diet consisted of white turnips, white cabbage, white cornmeal, and oatmeal cakes prepared with Mendel's salt mixture (sodium chlorid, calcium lactate, magnesium citrate, ferric citrate), with filter paper. Pure carotin in olive oil did not supply the lacking food element. These experiments were not designed, however, to test out the vitamin content of carotin, and were poorly controlled. I determined the amount of carotin intake in a guinea-pig used by Wolbach and Howe¹⁹ as a control animal. This had been on a synthetic diet for two years, receiving all its carotin and xanthophyll in five cubic centimeters of orange juice daily. The daily intake of carotin was 0.002 milligrams; of xanthophyll, 0.07 milligrams. The animal was in perfect health.

From these results it may be concluded that vitamin A and carotin have almost the same solubility properties, and are very closely associated in plants, but that one may be present in some substances without the other. Carotin takes the place of the deficient substance in a diet which causes Crittenden and Underhill's disease in dogs, and this disease appears to be associated with black tongue in dogs and pellagra in man. In view of the contradictory results of Underhill and Goldberger, however, no conclusion can be arrived at concerning the relationship of carotin to vitamin PP,* nor, in fact, to any vitamin.

The effect of feeding lipochrome to animals differs with the animal in question. Practically all, of course, ingest it regularly with food. But the rabbit, guinea-pig, and many other animals do not store it in their adipose tissue. It is present in the fat of man, horse, cow, chicken, and others. Even when fed in concentrated form to rabbits and guinea-pigs, or injected intravenously or intraperitoneally into these animals, the fat does not become colored.²⁰ It is present in the blood of those animals which have colored fat, and is not found in detectable amounts in the blood of animals with colorless fat (van den Bergh, Palmer, Connor).

* The cycle of xanthophyll in chickens has been observed by Palmer and his associates. It is taken in in yellow corn and green plants, appears in the fat and skin, and later in egg yolk. The density of color of egg yolk depends directly on the diet and indirectly on the number of eggs laid. When a diet low in lipochrome is fed, or when a large number of eggs are being laid, the skin and fat become pale, and the egg yolks colorless. In the chicken, then, one way of excretion is through the ovary, and in this and other animals it is excreted by the skin (Palmer), the sebaceous glands, and, in man, according to Hess and Myers,²¹ the urine. I could not confirm this last in guinea-pigs and rabbits, nor in one adult to whom pure carotin in olive oil was fed.

Lipochrome was present in the adrenal glands

* Pellagra preventive.

in all animals studied by van den Bergh, Muller and Brockmeyer,²² and by Connor.²³ It has been found in the blood, fat, skin, liver, spleen, adrenals, and corpus luteum of man, in the liver and adrenals only of rabbits and guinea-pigs; and in the skin, fat, and egg yolk of chickens. It was not present in any organ of a three months' old infant.

The maximal effect of carotin feeding is produced in diabetics upon a diet of green vegetables. The condition called "xanthosis diabetica" has been known since 1913 to be associated with an increase of lipochrome in the blood. Numerous cases of carotinemia have been reported in Germany in diabetics,²⁴ in children under asylum conditions, or in adults upon semi-starvation diets during the war. A few have been reported in this country since 1919 in children (by Hess and Myers)²¹ and in diabetics (by Head and Johnson,²⁵ and by Stoner).²⁶ A yellow coloration of the skin had been noticed by Baelz²⁷ in 1896, in Japanese upon diets of yellow vegetables. He called the condition "aurantiasis cutis." In nearly all these cases the condition has cleared up upon reduction of the amount of green vegetables ingested. But it is to be noted that certain diabetics frequently show a yellowish coloration of the skin even when, by the use of insulin, they are taking essentially normal diets, and such a patient is usually in the class of the severe diabetic, and has a high blood cholesterol. Also, carotinemia has never been reported in individuals who have been upon otherwise normal diets. Rabinowitch²⁸ believes that persistent carotinemia has about the same significance in diabetes as a persistently high blood cholesterol, that is, a doubtful prognosis. It was noted by Rabinowitch, and by myself, separately, that the average amount of carotin in normal blood is about 0.06 mg. per cent, and that in diabetic blood it is usually over 0.1 mg. per cent.

METABOLIC CYCLE IN MAN

In man the metabolic cycle seems to be as follows: Lipochrome is ingested with the food, is absorbed only partly, probably along with cholesterol by way of the portal system as well as by lymphatics, appears in the blood stream in higher concentration during the period of fat absorption, then falls in amount as the amount of fat decreases, *i. e.*, in about four hours. Some of it is carried to and deposited with lipoids in structures where fat is being stored or used in the formation of new tissues. These latter consist normally of the adrenal cortex, where lipoids appear necessary for cell metabolism, the corpus luteum, the sebaceous glands, and the skin. Pathologic lesions in which lipochromes appear are those structures to which lipoids contribute or form an essential factor, namely, xanthomas, atheromatous patches in the aorta, pathologic accumulation of fat in the spleen, liver, heart, or other organs, and lipomas.

That lipochromes may be broken down by the liver is indicated by the following experiment: Four rabbits were fed pure carotin in olive oil. Four hours later blood from the right heart and

from the peripheral circulation contained no carotin, but blood from the portal vein contained from a trace to 0.01 mg. per cent. The liver from these animals always contained carotin, but none was found in the bile. It is possible that what little carotin is absorbed from the intestine of these animals is broken down by the liver. Simple oxidation would render it colorless, and so its further progress could not be followed. Most of it, changed and unchanged, is excreted by the intestinal tract. The feces of all animals examined (man, rabbit, guinea-pig, rat) contained abundant lipochrome. There is only one positive experiment to the effect that carotin is excreted in the urine (that by Hess and Myers). All others have been negative or inconclusive.

SUMMARY

1. Lipochromes seem to be inert substances which are taken into the body in the food, and because of their solubility in fat, are stored where fat accumulates. They are not present at birth in infants, nor in other animals.

2. Carotin is closely associated with vitamin A in plants, but the two are separable. It exerts some influence upon conditions associated with vitamin B deficiency, but definite evidence that it will cure beriberi or pellagra is lacking.

3. In those animals which absorb lipochrome it is stored where lipoids appear normally or abnormally. The most notable places under normal conditions are: adipose tissue, adrenals, corpora lutea, and sebaceous glands; of abnormal conditions, xanthomas, lipomas, atheromas, and fatty infiltrations of liver, spleen and heart, are the most important.

4. Certain animals do not store up lipochrome, probably for two reasons: first, because very little is absorbed from the gastro-intestinal tract, and, second, because what little is absorbed passes into the portal system, and is broken down by the liver.

5. Normal human blood commonly but not constantly contains carotin in measurable amount. It is slightly increased in the blood of diabetics, and in these it may be associated with lipemia. Normally it is increased in the blood within two hours after the ingestion of carotin. It is excreted by the intestinal tract, and the skin and sebaceous glands. It does not appear in the urine.

6. There is no evidence that lipochrome is synthesized in the animal body or that it enters into any metabolic process.

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MONOCULAR OCCLUSION IN APPARENTLY ORTHOPHORIC EMMETROPE*

By RODERIC O'CONNOR, M. D.

Oakland

MY first paper on this subject appeared in the *British Journal of Ophthalmology* of 1924. It gave the results in a series of cases, and was intended to confirm and reinforce Marlow's work.

My second paper was before the 1926 meeting of the American Academy of Ophthalmology and Otolaryngology. In that paper were listed 110 patients who were apparently orthophoric but whose symptoms persisted after accurate correction of refractive errors.

In this paper I wish to list a series of emmetropes who were apparently orthophoric. All had persistent discomfort, related to the use of the eyes, severe enough to persuade them to carry out the prolonged monocular occlusion test in hopes of finding the cause of their symptoms.

In looking over my records I found at least as many similar cases who failed to carry out the test and many times the number listed who were practically emmetropic and whose muscle bal-

ance was within the degree of variation from orthophoria that is usually considered of no importance.

I am including only those who came under the strict limitations of the title in order to shorten the table and to make more emphatic the importance of the test.

In this connection I wish to state that I prove my operative results by occlusion, figuring that my work is not finished till the patient tests within the allowable variation from normal behind the patch.

This shows two things:

1. There is no need to fear the production of an opposite condition, provided, of course, that the right operation has been done at the right place.

2. The test behind the patch is the true one, exactly as the refraction under cycloplegia is the true test in that respect. In each instance the muscles involved have been put at rest.

In order to forestall the usual suggestion of a discussor I want to admit here that, if a series of *apparently normal and comfortable* eyes were patched, many would show muscle deviations, exactly as the cycloplegic discloses the true refractive error. The answer is that we are only interested in those patients who are in trouble. Because one patient may have no symptoms from a three-degree hyperphoria is no sign that another may not. In any event the occlusion test proves matters one way or the other.

The other point usually brought up in discussion is the question of accurate refraction. Ignoring the implication, I wish to state that many patients are perfectly comfortable with the hook-front prisms worn over an old correction that is known to be far from correct, and many others are comfortable with a prism correction alone when there are worthwhile amounts of ametropia present. All of which proves that moderate degrees of refractive error frequently fail to produce symptoms, just as errors of muscle balance so fail. Sometimes I see patients wearing spheres of a quarter diopter prescribed by oculists. I consider such a prescription to be an admission of ignorance of the cause of the symptoms.

Several years ago Doctor Burleson of San Antonio wrote an article praising highly an operation, devised by another Texan, for the relief of trachomatous lid troubles. He stated that, in all probability, American ophthalmologists would ignore the operation because it had not been invented by someone in central Europe with an unpronounceable name. I feel much the same in regard to the occlusion test. Had its discoverer been able to sign his name Ivan Awfulitch instead of Marlow the chances are that American ophthalmologists would have taken it up at once.

In my opinion only the unscientific and gullible type of mind can resist the proof, contained in the appended table, of Marlow's contention that

* Chairman's address, Eye, Ear, Nose and Throat Section, California Medical Association, at the Fifty-Eighth Annual Session, May 6-9, 1929.

only by prolonged monocular occlusion can an accurate diagnosis of the extraocular muscle balance be made.

1904 Franklin Street.

TABLE OF CASES

	Heterophoria			Remarks
	Exo.	Eso.	Hyper.	
4483			1	Headaches present as long as can remember stopped from date of patching. Prisms gave desired relief.
4821	4		2	Prisms gave relief.
5195		1	3	"No trouble now in using eyes."
5319	4		3	"Entire relief from headaches." Prisms.
5440	1		3	"Can not get along without prisms."
6155	3		3	"Sews constantly and no trouble." Prisms.
7221	5		6	Optional shortening of sup. rect. gave entire relief.
7398	7		3	Patch relieved symptoms of 15 years' standing; prisms also, but she preferred operation, which also gave relief. No return of symptoms three years later. She had an appendectomy in hopes of relief from severe headaches.
7428	3		2	"No troubles." Prisms.
7495	6		2	"Can read and sew without headaches." Prisms.
7804	8		2	"No more headaches." Prisms.
4401	3		1	This patient could converge only to 16 inches, but refused operation for that insufficiency.
238F	6		5	"Better with prism correction."
716F	11		5	Optional shortening of sup. rect. gave entire relief except for reading. Prisms 3 in. gave relief for near.
8838	7		5	Optional shortening of sup. rect. gave entire relief.
8658	9		6	Shortening of sup. rect. and partial tenotomies of both external gave complete relief from headaches.
8654	3		2	Prisms gave relief.
7797	8		2	Partial relief by prisms. Operation refused.
7804	8		3	Headaches and near disability relieved by prisms.
7843	3		1	Prisms gave entire relief even from scintillating scotoma.
9560	3		3	Prisms gave relief.
9292	3		3	Prisms gave relief.
3306	9		3	Prisms gave relief. No more nausea after near use. Auto trips now possible for the first time in comfort.
9728	6		3	Vert. prisms gave very definite relief.

By optional operation is meant one done at patient's request with the idea of doing away with the need for any glasses. None were done unless prism correction had given relief from symptoms.

TREATMENT OF FRACTURES*

THE USE OF UNNA'S ZINC OXID GELATIN MIXTURE

By LEO ELOESSER, M.D.

AND

W. L. ROGERS, M.D.

San Francisco

DISCUSSION by Maynard C. Harding, M.D., San Diego; Ralph Soto-Hall, M.D., San Francisco; H. W. Chappel, M.D., Los Angeles.

THE adhesive mixtures generally used in applying traction for the treatment of fractures have various disadvantages. Ordinary adhesive plaster, consisting of a rubber base with zinc oxid, irritates the skin and makes a water-tight dressing. Acne pustules and blisters make it necessary to change such a dressing after five, six, or seven days. The older yellow adhesive (Maw's English adhesive plaster on moleskin) is better, but not

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quite so soft and pliable. A crease in the plaster makes a break in the underlying skin. It shares with rubber adhesive a tendency to slip with weights exceeding ten to twelve pounds, and when plaster slips, it invariably pulls the skin with it and makes further traction impossible. It does not keep well; old plaster is hard and brittle and does not adhere. Pure white Venice turpentine (which is not turpentine, but a solution of resins) and absolute alcohol, equal parts, painted on the skin makes an excellent adhesive mixture which gave great satisfaction abroad. It held well, so well that the cloth held by it to the skin would tear before the turpentine mixture gave; it was cheap, easily applied, and did not irritate. But it has not been possible to get the pure white Venice turpentine here; the yellow proved so irritating and made so many blisters that we had to abandon it.

Sinclair's glue and the acetone-celloidin mixture both get very hard and are likely to make pressure sores. Of the substances listed, English adhesive on moleskin for longitudinal strips, with the ordinary zinc oxid adhesive on muslin for transverse strips, seemed the most satisfactory.

UNNA'S ZINC-GELATIN

For several years we have given up adhesive plaster for traction and have substituted Unna's zinc-gelatin and stockinette.

For use in fractures an adhesive substance should meet two requirements: it should not irritate the skin and it should stick—stick for several weeks without having to be changed and without leaving a bed of pimples and pressure sores behind. Unna's zinc-gelatin does this.

The formulas vary. A very satisfactory formula is: Zinc oxid and gelatin aa 75.0 (one part of each by weight); water and glycerin aa 150.0 (two parts of each by weight).

The gelatin should be allowed to soak in the cold water several hours before heating; the mixture is then warmed over a water bath until the gelatin is melted, the zinc oxid is stirred in, and finally the glycerin added. The quantity given above is sufficient for one dressing; it is well, however, to make up several pounds at one time. Addition of 5 to 10 cubic centimeters of 5 per cent carbolic acid will prevent mold if the mixture is to be kept. It should be dispensed in a tin container, not in a glass or porcelain jar which will crack when the mixture is heated later. It should have a rubbery consistency after it cools and be smooth and free from lumps of undissolved gelatin. Any druggist can put it up.

OTHER ESSENTIALS FOR TRACTION

The other essentials for traction are: several yards of narrow stockinette, two or two and one-half inches wide; several yards of Canton flannel bandage two and one-half or three inches wide; a wooden board which is a little longer than the distance between the two bony prominences over which pressure may come (usually the two malleoli) and with a hole bored through its middle; some cord; carpet tacks; a hammer; and the necessary weights, pulleys, and splints.

PROCEDURE IN APPLICATION

These having been procured, the tin with the quantity of zinc-gelatin given above is set in a pan of water and heated. The limb is usually shaved, although this is not imperative, and a single layer of stockinette is pulled over it, smoothly, as one would a stocking. The melted zinc-gelatin is then worked into the stockinette with the hand. The hand works the warm mixture well into the meshes of the cloth, for it is adhesion between this lower layer of stockinette and the skin that counts; adhesion of the upper layers matters little. The gelatin should be applied as hot as the hand will bear. It is thin and workable when hot; as it cools it gets sticky and does not penetrate the meshes of the stockinette. The hand safeguards the patient against being scalded with too hot a mixture. A foot or so of the stockinette is left projecting below the sole of the foot and the rest is doubled back over the first layer. It is unnecessary to work further zinc-gelatin into the top layer of stockinette. It will stick by itself. A handful of absorbent cotton is dabbed onto the dressing to prevent its sticking to the bedclothes and the whole is powdered with talcum. The stockinette is slit over the back of the foot and the heel as far as the ankle, and the two lateral flaps thus formed are tacked to the spreader board. If the stockinette is narrow enough it will fit perfectly smooth without a crease or a fold; if it creases or folds, it is too wide and will not adhere.

An additional layer of zinc-gelatin and an additional wrapping with strips of Canton flannel placed transversely around the leg will add further support if much weight is to be used. The strips should be applied like shingles on a roof, beginning at the ankle, each turn being cut instead of reversed, as in applying an ordinary roller bandage.

COMMENT

This Unna's gelatin dressing has been very useful. It may remain in place indefinitely—six to eight to ten weeks. It is left this length of time in old people with fractured femoral necks; the skin remains beautifully smooth and white under it.

If stockinette is not to be had, two longitudinal strips of firm unsized muslin may be used; these are covered with transverse strips of Canton flannel as described above.

If much weight is to be used a firmer material, muslin, or drill may be sewn as a reinforcement to the stockinette from the ankle down and around the spreader board.

It is scarcely necessary to recall the usefulness of this dressing in leg ulcers, varicose veins, and the chronic edema of limbs recently removed from splints and plaster of Paris dressings. This bandage is habitually put on patients with fractured legs before letting them out of bed, or immediately after removing plaster of Paris splints. But one layer of stockinette should be used and this always crossed with a transverse layer of Canton flannel or wide-meshed crinoline if the bandage is to prevent edema. Stockinette alone will not do; the strain is transverse and not longitudinal, as

with fracture appliances. The dressing is applied in the morning, before the leg is swollen; to apply it after the leg is edematous is useless. One dressing will last for six to eight weeks. It is cleaner, cheaper, and more comfortable than a rubber stocking, but it must not be wet. The patient must keep his leg out of the water when he bathes. Hot water will immediately melt the dressing; the easiest way to remove it is to put the patient into a warm tub.

490 Post Street.

DISCUSSION

MAYNARD C. HARDING, M.D. (700 Electric Building, San Diego).—The dressing here described is one of the best. I do not believe, however, that it is really superior to Shiver's moleskin plaster. Orthopedic surgeons are used to leaving this plaster on as long as five months at a time, and have found it does not irritate. The newer rubber moleskin plasters are no better than ordinary adhesive, in my experience.

RALPH SOTO-HALL, M.D. (350 Post Street, San Francisco).—I have had a limited experience with this method of traction, but have found that great importance should be given to the snugness with which the stockinette is applied. This stockinette should be very narrow or proper adhesion to the skin will not take place. Certainly adherence to every detail of the technique is necessary for success.

H. W. CHAPPEL, M.D. (1136 West Sixth Street, Los Angeles).—Unna's gelatin dressing for traction, especially in fracture cases, has distinct advantages over other kinds of traction. The even pull on all of the skin under the dressing, the length of time the dressing can be used without changing, the excellent condition of the skin when the dressing is removed, and the ability to apply traction immediately, warrant a thorough trial of Doctor Eloesser and Doctor Rogers' method.

DOCTOR ELOESSER (closing).—Since writing the above paper we note that Böhrer of Vienna uses a zinc-gelatin traction dressing in fracture of the femur as an adjunct to skeletal traction by means of a Steinmann nail driven through the tibial tuberosity. (Technik der Knochenbruchbehandlung, Vienna, 1929.)

GOITER OPERATIONS IN MENTAL DISEASES*

By GEORGE H. SANDERSON, M. D.

AND

MARGARET SMYTH, M. D.

Stockton

DISCUSSION by Thomas G. Inman, M.D., San Francisco; Clarence G. Toland, M.D., Los Angeles.

THE idea that there might be a connection between disturbances of the thyroid gland and mental disease is not a new one. Parry,¹ in his classical description of exophthalmic goiter in 1786, mentions that it may be associated with mental phenomena. Graves² in 1835 noted the frequency of severe hysteria in this condition. Alex Robertson³ in 1874 held the view that Graves' disease was due to an inflammation of the cervical sympathetic, and that the accompanying exophthalmos and insanity were due to hyperemia in the affected organs from this cause, just as was goiter in the thyroid. In 1877 Leonard

* Read before the General Surgery Section of the California Medical Association at the Fifty-Eighth Annual Session, May 6-9, 1929.

Cane⁴ discusses the connection of exophthalmic goiter with mania. Savage⁵ in 1882 reported several cases of insanities with goiter, rejected the sympathetic theory, and maintained an open mind on the question of etiological relationship.

Since these early writings, articles too numerous to mention have appeared dealing with the various ramifications of this complicated subject. In one of the most exhaustive treatises on the relation of endocrine disturbances to mental disease Paul Sainton,⁶ in a series of articles published in 1906, described mental conditions arising from alterations in many of the glands of internal secretion. He separated the symptoms due to thyroid intoxication into two groups, one of maniacal agitation, and the other a depressive type.

REVIEW OF LITERATURE

The first article on goiter operations in mental diseases was that of Berkeley and Follis,⁷ who performed hemithyroidectomy in ten cases of catatonia. They claimed several cures and concluded that catatonia might be due to a hyperthyroidism or to a perverted secretion. Kanavel⁸ in 1909, after operating on twelve patients with catatonia and observing improvement in only one, concluded that there was absolutely no justification for thyroid surgery in this condition. Winslow⁹ in 1910 reported five cases in which operation was done with rather discouraging results. However, he believes that there may be some connection between the thyroid and the mental disease in question. Weinberg¹⁰ in 1922 reported a case of dementia praecox and one of manic depressive insanity, each with exophthalmic goiter, and both of them cured after thyroidectomy. Eastman and Eastman¹¹ performed hemithyroidectomy in four cases of dementia praecox in which one lobe of the thyroid was enlarged, and noted entire relief of the affliction in each case. Boys¹² in 1926 reported eight thyroidectomies for cases of goiter with well-marked mental symptoms, with six complete recoveries. De Courcy¹³ this year reports fourteen operations on insane patients with Graves' disease with twelve complete mental recoveries.

During the past four years Dr. Margaret Smyth, assistant superintendent at the Stockton State Hospital, and the writer have operated on fifteen goiters at the State Hospital and at the Clark Sanatorium in Stockton. We are indebted to Dr. Fred P. Clark, superintendent of the sanatorium, for permission to do this work, and for advice and counsel in its performance, which we wish to acknowledge at this point. This paper is based on the entire number of operations performed on such cases in this community, and on the results obtained, as all the cases have been followed up. These cases represent no especial group, either from the mental or somatic standpoint, but simply at random a series of operations on the most outstanding cases of thyroid disease that have occurred at hospitals for the insane in this community. In this respect this series, I believe, differs from any that I have been able to find reported in the literature.

EFFECT OF THYROID SECRETION ON NERVOUS SYSTEM

That the secretion of the thyroid gland has a profound effect on the nervous system and on the mentality of the individual, is so evident as to scarcely merit discussion. One has but to observe the profoundly toxic case of Graves' disease, or the well-developed case of myxedema to be convinced of this. On the experimental side Crile¹⁴ has shown that the thyroid gland, through its control of iodine metabolism in the body, controls the electric conductivity of the brain. Extirpation experiments and thyroid feeding experiments supply much information. Without the thyroid the brain is dull and stupid, and in infancy does not develop. With excessive thyroid secretion the nervous system is tuned to a high pitch of reactivity, its balance is exceedingly delicate and overresponsive to stimuli. The mental response which one would expect from abnormalities in thyroid secretion would be that which most commonly results from any intoxication and, depending on stimulative or depressive factors, varies from delirium, through more or less agitated, confused states, to stuporous conditions. Just what connection the major psychoses may have to this type of disturbance is a matter of question. Werelius and Rydin,¹⁵ in a statistical study based on examination of 4184 insane patients in Chicago, found only 6.45 per cent affected with goiter, which cannot be much above the incidence in that region among the sane. The percentage of goiters in dementia praecox, involuntional melancholia, and simple depressions was somewhat greater than this average. Strangely enough they found in catatonia, about which so much has been written concerning its supposed resemblance to exophthalmic goiter, and its improvement after thyroidectomy, thyroid enlargement was rare—93 per cent of the goiters in dementia praecox occurring in the hebephrenic form.

The mental disturbances of the somatic type, which we know from common clinical experience to be due to thyroid diseases, are met with very seldom in insane hospitals. They are commonly recognized as intoxications and not frank psychoses, and are dealt with in our general hospitals.

RELATIONSHIP BETWEEN GOITER AND MAJOR PSYCHOSIS

We might postulate the several possibilities which occur to us regarding the relationship that goiter may play to a major psychosis, as follows: (1) that it may be incidental, and have no effect on the psychosis; (2) that it produces a hyperthyroidism with an agitating and unbalancing effect on the mind; (3) that it produces a hypothyroidism, with a dulling effect on the higher centers which through lessened control become alienated; (4) that it produces a perverted secretion, or dysthyroidism, with a specific effect on the higher centers; (5) that a large goiter through pressure on venous return produces a congestion of the brain with a psychosis dependent on abnormal circulation; (6) that it supplies a point of irritation of any type which brings out or

exaggerates the inherent characteristics of an unstable individual, causing the development of a frank psychosis.

In studying the records of these fifteen cases (the histories of which, unfortunately, time will not permit me to read) we have been impressed by a number of interesting points, which the following statistical summaries will bring out.

TYPES OF GOITERS ENCOUNTERED

Regarding the types of goiter occurring, our series has consisted of fourteen adenomas, ten showing a multiple colloid type, and four a fetal pattern, and but one hyperplasia with exophthalmos and this in a case of extremely bad epilepsy, in whom psychosis, if present at all, was a minor feature. As perhaps the most profound thyroid toxemias occur in exophthalmic goiter, we were surprised to find practically none of this type of goiter occurring among the insane. A series of goiters at random among the sane would show a higher percentage of exophthalmic type than we have found among the insane. This agrees with the survey of Werelius and Rydin, who out of 4184 insane patients found 270 goiters, only two of which were of the exophthalmic type, one being an epileptic psychosis and the other an undifferentiated depression.

Our series consisted almost entirely of adenomatous goiters. All were females; their ages varied from 26 to 64, the average being 41. In 53 1/3 per cent the goiter could be traced to well-known endemic localities. In 40 per cent of the adenomas there was a history of goiter in other members of the family. The duration of the goiter before development of mental symptoms varied from three to thirty years in the adenomas, and averaged fifteen and one-half years. This is not far from the average duration of an adenoma before toxic symptoms develop. However, we cannot say that many of the patients showed definite hyperthyroidism clinically. Out of fourteen adenomas only five, or 35 1/2, per cent showed clinically signs of hyperthyroidism, most of these being only slightly toxic. At least two were definitely hypothyroid. In many cases the endocrine status was very difficult to judge on account of the mental condition. We found it utterly useless to attempt to measure basal metabolism, except in a few, on account of lack of coöperation. In the maniacal type neither the pulse nor blood pressure could be relied on to give any clue to toxicity estimation. Definite obstructive circulatory signs could be found in only 33 1/3 per cent. One-third of our cases also revealed definite family history of insanity, probably a figure not high enough to represent the truth.

DIAGNOSIS IN CASES OPERATED AND RESULTS OBTAINED

The diagnoses in this series of cases were fairly representative of the usual percentage of the non-organic major psychoses in hospitals for the insane. We operated on five cases of dementia praecox, four of whom were unimproved by operation. In these the duration of the psychosis had been from four to seven years, and they were all bad cases. In the fifth the patient could be

said to be improved, as she was violent before operation, and afterward became a good, quiet trusty worker. However, she still has hallucinations and, therefore, cannot be said to be cured. The duration of her psychosis before operation was only two years, the shortest duration in the praecox cases we operated on. These cases were all hebephrenic or paranoid types. We have seen no catatonics in these institutions with well-marked thyroid disease. We also did five operations on patients having the diagnosis of manic depressive insanity. Three of these were of the depressed type and two were of the manic type. All three of the depressed type recovered mentally shortly after their goiter operations. Two were followed four years, and the other over two years after operation, and all were continuing perfectly well. Of the two manics one recovered mentally shortly after operation, and the other continued in a maniacal state unaffected by the operation, and died sixteen months later of maniacal exhaustion. One case, diagnosed involutional melancholia, who had been insane for one year before operation, was discharged as well four months after operation. One case, diagnosed psychosis with somatic disease, with a delusional insanity, recovered and was discharged four months after operation. One case of arteriosclerotic insanity in a woman aged sixty-four, with a large goiter, died two weeks after operation of cerebral arteriosclerosis. One very interesting case was an imbecile, age forty, who had a large goiter and had been an inmate of a home for feeble-minded for twenty years. For several years prior to operation she had been doing housework very well. She then became hysterical and developed delusions that someone was pulling her right ear and harassing her by driving swarms of bees around her. She was diagnosed as insane and sent to the State Hospital. Examination revealed a goiter extending from just below the lobe of her right ear on the right side, to an intrathoracic nodule on the left, which gave rise to a very loud buzzing bruit. After operation her delusions, which were really illusions, disappeared, her hysteria with them, and she is again a good worker. Our only case of exophthalmic goiter was an epileptic with an extremely toxic condition. Three operations were done on account of her condition, first a ligation, and then thyroidectomy in two stages. Her epilepsy was not improved, and she died seven months after operation in a convulsion.

CONCLUSIONS

It is quite apparent that there is no very simple etiological relationship between the ordinary form of thyroid intoxication (hyperthyroidism) and the major psychoses. Much has been written about exophthalmic goiter operations in the insane. It is our opinion that hyperthyroidism is rarely found in the true psychoses. An extreme hyperthyroidism resembles mania very closely and a delusional state may simulate dementia praecox, which is no more a psychosis than a typhoid fever delirium. We are inclined to think that many of these cases reported in the literature may have

been toxic deliriums rather than true psychoses. As to dysthyroidism or perverted secretion being a factor in these cases, no very good evidence has ever been brought forth to show that there is such a secretion possible, so we have disregarded this theory. Many large goiters produce a hypothyroidism, and this is much more apt to be a factor in this type of mental disease than a hypersecretion. Certainly hypothyroidism is a potentially toxic condition. However, we are inclined to believe that in most of these cases the goiter supplied a point of irritation which played a more or less important part in bringing out the inherent characteristics of a mentally unstable individual, and producing a true psychosis. Certainly anything that is apt to improve the general health of the body is going to increase the likelihood of recovery from a psychosis. The earlier this is done, before permanent physical changes take place in the corticocerebral cells, the greater the benefit we would expect to reap. Thus we obtained no results in our cases of dementia praecox which were severe and of long standing, but 80 per cent of all other cases than dementia praecox recovered from their psychoses. Despite the fact that most of these patients were very violent, we encountered no insurmountable difficulties in handling them postoperatively and, in fact, had no surgical mortality whatever. We are inclined to believe that the coexistence of goiter with major psychosis not only does not constitute any contraindication to operation, but that, on the contrary, the operation should be done, as it may break a link in the chain of etiology of the psychosis. Operation offers a prospect of cure; in fact, except in long-standing cases, a very good prospect.

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DISCUSSION

THOMAS G. INMAN, M.D. (879 Market Street, San Francisco).—It is an old observation that the nervous system is especially disturbed in affections of the thyroid gland. Graves spoke of the similarity of goiter symptoms to hysteria, and the French regarded them as the result of a neurosis.

While nervous symptoms are fairly constant in thyroid disease mental disturbances of a grave character are more rarely found. Abnormal irritability, rapid flow of thought, excitability without apparent cause, are common in increased activity of the thyroid. In severe cases there may be delirium, confusion, and coma. Hallucinations may occur. When the mental symptoms are of sufficient moment to suggest the presence of a psychosis the clinical picture, if dependent solely upon the abnormal thyroid function, will be recognized as a toxic psychosis, which, in reality, it is. These toxic mental symptoms should disappear with improvement in the thyroid disease regardless of whether medicine or surgery is responsible for the change. Attack upon the main problem, the thyroid disease, should be prompt and decisive. The mental symptoms will take care of themselves.

Occasionally thyroid disease develops in individuals already the subjects of a true psychosis but in whom the thyroid disease bears no causative relationship to the psychosis. Here a careful history, family and personal, with close examination of the psychosis itself may serve to clarify the situation and act as a deterrent to operative treatment. In patients belonging to this group the psychosis is rarely improved by surgical interference.

Into a third group will fall those unstable individuals whose mental balance is easily disturbed by exciting or depressing influences arising either within themselves or in their environment. The sudden lighting up of an old goiter may be sufficient to incite disturbances in the mental sphere and lead to the necessity of deciding upon the question of special treatment for the thyroid condition.

Unfortunately, in these patients, objective signs of thyroid disturbance are not marked and are estimated with difficulty. It is upon the clinical judgment of the medical attendant that dependence must be placed for the proper estimation of the influence of the thyroid on the mental upset.

There must necessarily be some errors in selecting proper cases for operation, should operation be the method of treatment indicated, but if preliminary studies, such as the nature of the case will permit have been carried out, occasional failures in obtaining a regression of the mental symptoms will be excusable.

The foregoing generalizations on the subject of psychoses in thyroid disease are supported by the experience of Sanderson and Smyth. Their deductions seem legitimate and go only as far as our present knowledge of the subject permits. In a small group of cases it is impossible to come to any hard-and-fast conclusions. Particularly is this true of the manic-depressive group where a recession of the psychotic symptoms may occur spontaneously. However, a selection of material, based on the results obtained in this study, would probably show a larger proportion of recoveries than are here reported.

In considering the relationship of somatic disease of any kind to an existing psychosis one must keep in mind something of the idea expressed by Esquirol more than one hundred years ago. "Every kind of organic lesion observed in the bodies of the insane has been also found in the bodies of those who never evinced a symptom of insanity."

CLARENCE G. TOLAND, M.D. (1930 Wilshire Boulevard, Los Angeles).—The influence of thyrotoxin upon the psychic state of an individual is a subject of considerable interest and importance, particularly to the psychiatrist and to the surgeon.

Doctor Sanderson's and Doctor Smyth's interesting paper is a valuable contribution to the problem.

It is difficult to prove that toxins of thyroid origin can produce definite mental disturbances, such as the major psychoses, but we must admit this possibility when we consider the important rôle other toxins play in the etiology of the insanities.

It is true that exophthalmic goiter rarely occurs in the insane, but not infrequently cases of exophthalmic goiter are found among the insane. These have been wrongly diagnosed and are merely manifesting phases of the depressive or stimulative effects of the toxic thyroid. The man who removes these unfortunate individuals from their environment and by proper treatment effects a cure certainly performs a very great service. Would it not be advisable for all institutions for the insane to employ someone especially qualified in diseases of the thyroid to examine their patients at intervals and attempt to segregate these cases?

The adenomatous goiters are of more frequent occurrence and, when toxic, they undoubtedly aggravate a preëxisting psychosis. A subtotal thyroidectomy is indicated in the majority of this type, but there is a certain percentage who are better left alone. In our experience many of the cases were considerably benefited by an operation, but very few of them received a complete cure. They were able to work, perhaps, but they always seemed to remain mentally unstable. In two cases of dementia praecox no benefit was obtained. One case of true hallucinations and delusions, prior to thyroidectomy, became violent and required restraint for about three weeks after the operation. She was eventually benefited, but is still quite depressed.

Any insane patient with a toxic goiter should be given the benefit of a subtotal thyroidectomy, for he has little to lose and much to gain; but the results as a whole are not very stimulating to the surgeon accustomed to the marvelous results following similar operations upon sane individuals.

Among certain of the laity there is a belief that occasionally insanity will occur after the removal of a goiter, and not infrequently we are asked this question by the anxious relatives of our patients. This unquestionably is merely a superstition founded, possibly, upon the infrequent case of postoperative myxedema, for we have never known a goiter patient without insanity to form a true psychosis as a result of a subtotal thyroidectomy.

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DOCTOR SANDERSON (Closing).—I wish to extend my thanks to the doctors who have discussed our paper, and especially to Doctors Inman and Toland, whose kindly and thorough discussions of the subject are a real contribution. We do not claim to have accomplished anything spectacular in our treatment of this series of patients, but so little of a definite nature is known of these psychoses, and there is so much reason for suspecting a subtle underlying endocrine basis for at least some of them, that we thought that anything that might shed any light on their relation to the thyroid gland, the keystone of the endocrine arch, would be well worth while. While we had this underlying purpose in mind in presenting this series, in most of the individual cases there was an additional definite indication for operation, such as size, cosmetic considerations, actual obstructive phenomena, or toxicity.

INVERSION OF THE UTERUS*

REPORT OF CASES

By EDWARD N. EWER, M.D.
Oakland

DISCUSSION by H. A. Stephenson, M.D., San Francisco;
John C. Irwin, M.D., Los Angeles.

TWO patients with puerperal inversion of the uterus came under observation in Highland Hospital during the year 1928. Both were treated by vaginal hysterectomy for reasons stated in the case reports which follow. According to the usual classification, one would be called chronic because the inversion was treated several weeks after its occurrence, and the other acute because the whole series of events took place within twenty-four hours. Both patients recovered.

REPORT OF CASES

CASE 1.—G. I., age 21, was admitted on the gynecologic service because of bleeding from an inverted uterus.

The bleeding had been continuous since the birth of her baby in another hospital four weeks previously. The pregnancy was normal and the delivery at term was spontaneous after a labor of eight hours.

She states there was difficulty in the removal of the placenta, it being accomplished in about fifteen minutes by vigorous fundal pressure with one hand, and manipulation in the vagina with the other. Excessive hemorrhage immediately followed. There was no pain then nor during the weeks following. She was given a blood transfusion twenty-four hours after delivery. She left the hospital in an ambulance after two weeks, and the inversion was discovered by her physician at an examination made later in her home. No attempt was made at that time to replace the uterus.

On entering Highland Hospital this patient's temperature was 99, pulse 130, and respiration 24. There was a slight systolic murmur heard at the apex. Blood examination showed: red blood cells, 1,430,000; hemoglobin, 30 per cent; white blood cells, 9150. There was a foul-smelling bloody vaginal discharge. Examination disclosed the completely inverted body of the uterus in the vagina with the cervix tightly contracted. The patient was in charge of Dr. Clarence Page, who attempted to reduce the inversion by taxis. This failing, he performed a Spinelli colpohysterotomy. It was found that the efforts to reduce by taxis had partially ruptured the softened anterior wall. After the incision of the cervix had been continued nearly to the fundus the uterus was easily replaced. However, in attempting to repair the incision the tissues were found to be so friable that it was impossible to place the stitches so that they would support the wound edges in coaptation. The uterus was therefore removed.

During the course of the operation 520 cubic centimeters of blood was given by direct transfusion. The temperature for six days following operation ranged between 99 and 102. The patient was discharged in good condition, other than the anemia, at the end of three weeks.

CASE 2.—L. B., para 2, white, American, age 23, admitted July 20, 1928 in first stage of labor at term. Her first labor had lasted twenty-four hours, ending with forceps delivery. The puerperium was normal.

The present pregnancy was uneventful. The labor lasted five hours, resulting in delivery of a normal infant in L. O. A. mechanism. The cord was around

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the child's neck three times, necessitating clamping and cutting. This may have exerted a pull on the fundus and caused dimpling at the placental attachment, thus beginning the inversion. Several authors mention this as a probability in such cases. There was much hemorrhage at this stage. It was noted that the fundus rose slightly in twenty minutes. The attendant states that he thought this meant placental separation, so he then used pressure, without undue force, to expel the placenta. This was followed immediately by complete inversion. The placenta was adherent at the fundus. It was stripped off and the uterus easily pushed back into place. Hemorrhage, estimated at 2000 cubic centimeters, followed, and to control it the uterus was packed with gauze. The delivery took place at 8 p. m. The patient was given 1000 cubic centimeters of physiologic salt solution by hypodermoclysis. The uterine packing was removed at 10 p. m. and her pulse was recorded as 120. She was then given 500 cubic centimeters of 10 per cent glucose intravenously. The pulse at 11:15 p. m. was 98 and of good quality.

The next evening I was called to see the patient because of the presentation at the vulva of a dark red fluctuant mass. This proved to be a portion of the membranes the margins of which were still attached to the reinverted fundus of the uterus, imprisoning a few ounces of blood. The uterus was found to be again completely inverted, filling the vagina and tightly gripped by the cervix. Moderate taxis under ethylene failed to replace it. As its color was not good, and as infection was suspected, I decided to remove it. An incision was made in the vaginal wall of the anterior fornix, the lower line of the bladder was located with a sound through the urethra and it was pushed up out of the way. The anterior uterine wall was incised, as in the Spinelli procedure, and at this point the uterus could easily have been replaced had its condition warranted replacement. The broad ligaments were tied and the uterus, including cervix, was removed under clamps placed upon the vaginal wall close to the cervix. The vaginal opening was partly closed with chromic gut, leaving a strip of gauze for drainage. The highest postoperative temperature was 101, and on the seventeenth day the red cell count was 1,340,000, and hemoglobin 27 per cent. She was discharged in three weeks.

These cases are met with so infrequently in individual practice that we have to rely largely upon the examination of masses of case report data to gauge the value of treatment procedures.

Full reports are desirable. They should give the age and parity of the patient, and an expression of opinion as to the cause of the inversion and when and how it was discovered. The amount of blood lost, together with other allied symptoms such as shock and pain, with the measures taken to combat them, should be stated. The method of delivery of the placenta and its area of attachment is of importance. Finally the method of caring for the inversion itself should be described with the character of convalescence or cause of death.

RÉSUMÉ OF SERIES OF FIVE HUNDRED AND SIXTY CASES REPORTED IN LITERATURE

I have examined a series of reports more or less fully detailed in the articles of Thorn, Mason and Rucker, Evans and others, with the following results:

Total number of cases, 560.

Number of deaths, 80—14 per cent.

Hysterectomies—vaginal and abdominal—67; died, 9—13.2 per cent.

Anterior colpohysterotomies, 14; died, 0.

Posterior colpohysterotomies, 48; died, 2—4 per cent.

Manual repositions, 324; died, 60—18.5 per cent.

Manual reposition, then, as a method of treatment gives the highest percentage of deaths in this series. Most of these were done immediately and doubtless in the presence of shock. Furthermore, in nearly 30 per cent of the cases in which it was tried the attempts at manual reposition failed. So, with this high percentage of deaths and failures, some inquiry as to when and under what conditions manual reposition should be attempted seems advisable. In the eighty deaths in this series the reporters express definite opinions as to cause in only fifty-eight of them. Of these, twenty-one died of hemorrhage, twenty of shock, twelve of sepsis, two of pulmonary embolism, and three of anemia and heart failure. Shock may be present without hemorrhage, but the two are usually related and considered together. Their great importance is indicated by the fact that nearly three-quarters of the deaths are caused thereby. In spite of this most writers stress the advice to make immediate attempts to replace the uterus without considering the condition of the patient. This is apparently the impulse of most obstetricians when suddenly confronted with this startling emergency. It is well known that any surgical procedure undertaken during shock is dangerous. In case of inversion the replacement should, I believe, be delayed in favor of measures to stop the hemorrhage and improve the condition of the patient. This opinion is also expressed in the papers of Maxwell, Hoover, and Peterson.

IMMEDIATE TREATMENT

The hemorrhage should be treated by pressure with gauze pads wet with three per cent acetic acid solution packed about the uterus. A rubber tubing tourniquet may be used for short periods, but if left in place too long the result will be disastrous. Catgut sutures may be placed deeply in the lower segment to constrict the uterine arteries.

For shock, blood transfusion is indicated in most cases, but the emergency is acute and something is needed to bridge the time taken in finding a donor and making other necessary preparations. The most promising agent to meet this requirement is, I believe, the gum glucose solution so successfully used in shock and hemorrhage emergencies by Ward and Farrar in the Woman's Hospital in New York. Glucose solution alone does not seem to be sufficient. In general hospital practice there are so many emergencies in which time is lost in arranging for transfusions that this solution, kept on hand in 300 cubic centimeter containers ready for use, may mean the occasional saving of a life. Of course, physiologic salt solution hypodermoclysis should not be forgotten. The various heart stimulants often administered in haphazard fashion are of little use, for what the heart needs is not more forceful contractions but something to contract upon, and

when its venous supply is increased and the well-known symptoms of shock have been relieved, attempts may be made to replace the uterus.

Relaxation, according to many reports, is best secured by spinal anesthesia. If difficulty is encountered, the anterior colpohysterotomy of Spinelli is the simplest, easiest, quickest, and safest method of replacement. In the cases here quoted it was attended with no mortality. However, where infection is known or suspected the wound in the uterus may furnish the same good incubation place for organisms as does the cesarean wound. Hence it would seem best when frankly infected to remove the organ. Most authorities so advise in the infected cesarean case.

In regard to the prevention of inversions the suggestion of Jones is worthy of notice. He points out that in inversion there must of necessity be relaxation of the uterine musculature. He thinks a good rule to follow would be that no Crede manipulation or traction on the cord be practiced during the third stage unless the uterus is firmly contracted. He thinks this rule would prevent one-half of the inversions. Firm contractions can be secured by giving half an ampoule of pituitary extract immediately after the birth of the baby. The other half may be given after the placenta has been delivered. This is routine practice in Highland Hospital, but was neglected in the one case of inversion which occurred there. This method of using pituitary extract has the added advantage of leaving the uterus free of clots and thus almost eliminating after-pains.

CONCLUSIONS

See that the uterus is firmly contracted and the placenta separated before using pressure on fundus to expel the placenta. When inversion has occurred treat the patient for hemorrhage and shock before making attempts to replace the uterus. If manual reposition fails, do the Spinelli anterior vaginal hysterotomy under spinal anesthesia. Vaginal hysterectomy may be necessary if infection is present.

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DISCUSSION

H. A. STEPHENSON, M. D. (490 Post Street, San Francisco).—Doctor Ewer has given us a very complete paper on inversion of the uterus. This condition is quite rare and many physicians have not encountered the condition in their practices.

Two examples of this condition have come under my observation within the past two years and these constitute my entire experience. In each case there was complete inversion almost immediately following birth of the baby. Pressure was being made on the fundus in each case to expel the placenta, but no traction was made upon the cord and in one case the placenta remained entirely attached to the fundus of the uterus. Shock was severe in each case, but hemorrhage was not an alarming factor. Reposition was done after delivery of the placenta and the uterus packed. In the first case the patient lived about five hours; apparently died of shock. In the second case the patient made an uneventful recovery.

Polak has called our attention to our behavior during the third stage of labor and has emphasized a most important principle to be followed, namely, never to be in a hurry to express the placenta until

we are certain that it has separated, except in the case where profuse hemorrhage is encountered. Bearing this in mind, we perhaps avoid two of the important causes of inversion: pressure on the fundus of the uterus or attempts to deliver the placenta manually. In those cases where the uterine wall is very thin and flabby, spontaneous inversion may occur.

The treatment of the condition has been well discussed by Doctor Ewer, and leaves no room for further suggestion.

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JOHN C. IRWIN, M. D. (1709 West Eighth Street, Los Angeles).—Doctor Ewer's cases and discussion of treatment of this rare but dangerous accident of labor have been very interesting. Since each individual sees so few cases of this complication in a lifetime, even though doing obstetrics as a specialty, one cannot form an authoritative opinion from one's own experience. Authoritative opinions, therefore, can only be formed from a collection of cases seen by many observers, and treated by various methods, as Doctor Ewer has done in this paper.

I have seen two cases of recent inversion of the uterus at labor, one as a house surgeon at the New York Lying-in Hospital, which was immediately replaced and the patient recovered. The second case I observed at the Royal Infirmary, Edinburgh, Scotland, in August 1928. This patient had been delivered on July 31 in her home by difficult forceps extraction for persistent occipitoposterior position and the placenta twenty minutes later, probably by Crede. She complained of severe abdominal pain immediately after delivery of the placenta and had considerable bleeding and shock. The vagina was packed with gauze and the patient transported from the Highlands into Edinburgh, taking six hours for such transportation. On arrival the packing was removed and the patient again complained of severe abdominal pain. A saline douche was given and the pack reinserted. Severe agonizing pain was said to be the first and most prominent symptom, and a profuse lochia the next most prominent. This patient was operated upon August 6, 1928, by Doctors Davidson and Douglas Miller. Doctor Davidson did median laparotomy incision and then dilated the cervical ring manually from above while Doctor Miller made pressure on the fundus uteri through the vagina from below. Considerable force was required to dilate the cervix, as was also necessary to reduce the inversion from below. Doctor Miller said he was on the point of pushing a finger through the uterine wall. After reduction the uterine cavity was irrigated with eusol solution at 120 Fahrenheit, but not packed. Pituitrin was given. This patient recovered. She was, therefore, allowed to recover from her shock and to go for one week before an attempt was made to reduce her inversion. This is in keeping with Doctor Ewer's views and I believe is the proper method of treatment, under the conditions one generally sees these cases, since we usually see them in consultation some time after the accident has occurred. However, if one is present and already scrubbed, gowned and gloved, when the inversion occurs, I believe it would be wise to attempt to replace the inversion at once before the cervix can contract, and I believe immediate replacement would not be difficult or very shocking to the patient. Certainly replacement and packing would prevent much hemorrhage, which is no doubt one of the greatest causes of the profound shock from which these patients suffer.

Prevention is of course the best treatment, and the important point in prevention is not to hurry the third stage of labor by Crede or by early expression or by traction on the cord. Doctor Ewer has done us a service in reporting his cases and discussing the treatment so wisely and understandingly.

INTERSTITIAL CYSTITIS*

REPORT OF CASES

By ANDERS PETERSON, M.D.

AND

BENJAMIN H. HAGER, M.D.

Los Angeles

DISCUSSION by William E. Stevens, M.D., San Francisco; Frank Hinman, M.D., San Francisco; Robert V. Day, M.D., Los Angeles.

THE occasion for presenting a discussion of a single disease is to recall to your minds an entity which is frequently masked by such a vague term as an "irritable female bladder." The occurrence of the disorder is by no means rare. The subjective manifestations are those of intense distress and the relief afforded by intelligent management is often short of miraculous. The importance, therefore, of accurate diagnosis is apparent. Since Hunner's original contributions there have been several reviews of the subject, notably those of Kretschmer, Keene, Hunt, and Bumpus. The nature of Hunner's practice suggested that the disease was limited to the female. The experiences of Geraghty and Bumpus, however, indicate that while the condition is predominant in the female it may occur in the male. An analysis of our office records reveals that of 1707 patients there were 1292 men and 415 women, approximately three males to one female. There were no cases of interstitial cystitis encountered in the males. Among the 415 women there were eight cases, an incidence of approximately two per cent. As the major work in urologic practice is with men, it is significant that not a single case occurred in this group. This discrepancy is in agreement with the experience of other urologists.

No satisfactory explanation has as yet been offered to account for the preponderance in the female. The work of Bumpus, later corroborated by Hinman, would ascribe the etiology to a specific bacterium of blood-borne origin, presumably from some focus of infection. Teeth, tonsils, and sinuses have been incriminated. It is curious that focal infection originating in organs common to both sexes should be more selective and manifest in one than in the other. Clinical experience does not always attest to an apparent relationship between a possible focus of infection and the bladder involvement. Insofar as known there is no apparent relationship between inflammatory diseases of the female adnexa, including granular urethritis and pregnancy, and the occurrence of the bladder lesions. It is a fact, however, that the disease is much more common during the child-bearing period. Some writers are of the opinion that the coincidental infection in the kidneys and ureteral stricture may be in part responsible for the condition. Yet as a matter of interest chronic bilateral pyelonephritis in the adult is much more common in the male than in the female. Social status appears to be of no consequence. Owing to the chronicity of the disease and the failure of diagnosis it is most frequently encountered in

women during the third and fourth decade, but an accurate study often reveals the onset of bladder symptoms at an earlier date. Of our eight cases six were married and two were unmarried, and the ages varied from thirty-three to sixty-two years.

SYMPTOMS

The subjective manifestations are characteristic. Constant discomfort in the region of the bladder, often with definite pain over the suprapubic area which is aggravated by jarring or overdistention of the bladder, together with marked daily as well as nocturnal frequency and dysuria, are pathognomonic of the disease. The marked frequency is occasioned by the inflammation which acts as a splint, thereby causing excruciating pain on slightest overdistention. The urine is essentially negative microscopically. That such a widespread destructive process can occur in the bladder wall without giving rise to objective urinary findings is probably responsible for the condition being so frequently overlooked.

DIAGNOSIS

The diagnosis is made by the presumptive evidence as suggested by the history together with the cystoscopic findings. Because of the reduced bladder capacity, often holding but two to three ounces, the characteristic appearance of the lesion cannot always be recognized. These patients are so intolerant to instrumentation that local anesthesia does not suffice and paravertebral or general anesthesia is required for a satisfactory examination. Hunner, in his original study, made his inspections through an endoscope, using air as a means of distention. This probably in part accounts for his observation. We have frequently noted that, with the direct cystoscope with water as a medium of distention, we have been able to recognize the lesion which we could not again identify with the lens cystoscope, except by overdistending the bladder to a point where a rent in mucosa covering the area of interstitial inflammation caused a rather profuse hemorrhage. A multitude of descriptive terms have been used to indicate the nature of the lesion. Many continue to refer to it as an ulcer, but it is not an ulcer in the true sense of the conception. The term is poor because it conveys something which it is not. The classical appearance of the lesion is that of an area of salmon red, usually single, though oftentimes the areas may be multiple and scattered. Occasionally there may be small areas of punctate hemorrhage on the mucosa. The appearance and distribution depends greatly on the chronicity. Some areas may be small, under a centimeter in diameter; others may be linear and extend like a ribbon across the dome or wall of the bladder. The lesion is as a rule circumscribed and the mucosa adjacent to the margin of the lesion may appear somewhat edematous. On overdistention of the bladder, the lesion bleeds profusely and in place of the circumscribed lesion there may be various striations extending beyond what was previously considered the border of the lesion. The areas are extremely sensitive. When the lesion is identified without recourse to general

* Read before the Urology Section of the California Medical Association at the Fifty-Eighth Annual Session, May 6-9, 1929.

anesthesia the patient complains of typical pain when the area is touched with the beak of the cystoscope. This procedure may likewise provoke profuse hemorrhage.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis is as a rule not difficult. It may be confused with a simple ulceration or an ulceration of tuberculous origin, particularly so if the objective urinary findings are not marked. A simple ulcer per se is probably a very rare bladder occurrence and should never be so considered until tuberculosis or malignancy have been definitely excluded. Interstitial cystitis does not present the superficial excoriations or excavations of a true ulcer unless the salmon-red area has previously been treated by caustics or electrocoagulation. The surface of the lesions of interstitial cystitis does not become covered by adherent urinary salts or incrustations as observed in incrustated cystitis, Fenwick's ulcer and occasionally in the ulcerative, infiltrating carcinoma. True bladder ulcers are usually accompanied by microscopic hematuria or pyuria or both. Interstitial cystitis has a predilection for the unfixed portions of the bladder such as the dome and walls. Our studies reveal that in two cases the lesions were confined to the dome and in five to the right wall. In one case there was a history of multiple previous electrocoagulations as well as wide resection. A positive identification of a recurrence was not possible. Syphilis of the bladder, while rare and not distinctly typical, should be excluded by general examination and serologic studies. Chronic areal cystitis may simulate interstitial cystitis. This form of cystitis, however, is usually amenable to local treatment and does not cause the excruciating pain or hemorrhage on overdistention. Areas of atypical bladder inflammation associated with bullous edema may result from extravescical or pericystic inflammation, such as diverticulitis of the sigmoid, a diseased pelvic appendix or pyosalpinx. Such areas, however, do not present the cystoscopic appearance of interstitial cystitis and can usually be excluded by associated symptoms and special pelvic and colon examination. Bladder lesions occurring as sequelae of the application of radium to malignant conditions of the vagina and cervix should not be overlooked. They may closely resemble the symptoms of interstitial cystitis. Postirradiation bladder lesions may come on several years after radium treatment was instituted. When present they occur in the bladder base or trigone. The history of previous irradiation and location of the lesion should suffice to establish the diagnosis. In doubtful lesions a specimen should be removed for biopsy, not with a view to establishing a diagnosis of interstitial cystitis as there is nothing pathognomonic of the disease in the histological picture, but with a view to excluding malignancy.

Occasionally when considerable local treatment has been instituted the true nature of the disease may be masked by the secondary cystitis. When this is suspected a thorough study of the upper urinary tract should be made before attention is directed to the bladder treatment.

PATHOLOGY

The study of the pathology of interstitial cystitis is of interest chiefly because of what it fails to show. As previously stated there is nothing in the microscopic appearance of the lesion that is pathognomonic of the disease. The picture is that of an inflammatory process with typical chronic granulation tissue. Except where the mucosa has been broken by overdistention, the surface is more or less covered by low cuboidal epithelium. In some areas the blood vessels are numerous and prominent. There are both polymorphonuclear and round-cell infiltration. The latter is particularly predominant in the submucosal areas. The margin of the lesion bordering on normal mucosa is frequently jagged with marked perivascular infiltration and aggregates of round-cell infiltrations suggesting tubercles. Some areas show considerable fibrosis, probably dependent upon the chronicity of the inflammation. Other areas appear quite vascular and in certain sections there is present an unusual distribution of nerve tissue. The process may extend throughout the extent of the bladder wall.

TREATMENT

The treatment of this vague disorder is purely symptomatic. However, as the literature contains numerous reports of an apparent relationship of the condition with foci of infection, we have empirically advised the eradication of any possible focus as a part of the general treatment. The local treatment may be either radical or conservative. Segmental resection was practiced for a number of years, but the unsatisfactory results soon placed surgery in disrepute. These lesions have a great tendency to recur regardless of the nature of treatment instituted.

When recurrence follows segmental resection, the symptoms are more aggravated as a result of diminished bladder capacity. For the present at least, conservative treatment is the method of choice, namely, transurethral electrocoagulation, overdistention of the bladder, or a combination of the two. Hager and Bumpus have had considerable experience during the past two years with the two latter methods. With the patient under general anesthetic the bladder is distended with irrigating fluid to a capacity of 250 to 350 cubic centimeters. In many instances this simple procedure has been followed by a period of freedom from symptoms. The results have not, on the whole, been as permanent as those resulting from electrocoagulation. Electrocoagulation, plus overdistention, has given very satisfactory results and is the treatment of choice in the majority of cases. These patients practically all show an immediate relief from symptoms, many of them stating that for the first time since the onset they can sleep through the night and live in comfort during the day. Complete cures do not always follow. Relief from symptoms may be a false criterion of cure. Relapses are common and repeated electrocoagulations may be required. Extensive electrocoagulation may be contraindicated in those cases of long standing which have been subjected to numerous electrocoagulations. The

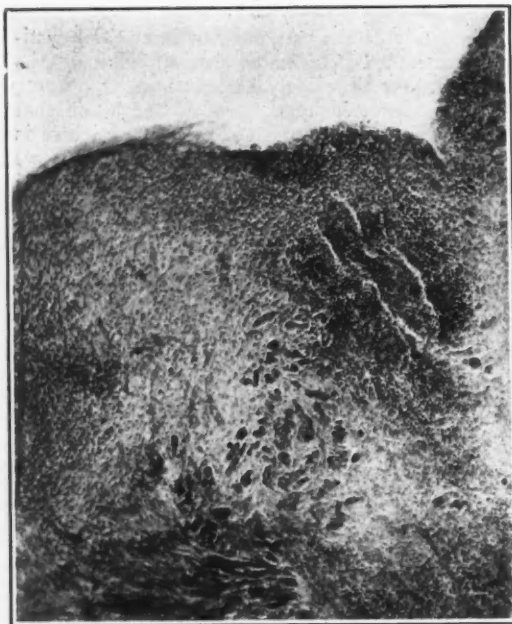


Fig. 1.—Almost complete loss of surface epithelium. Marked infiltration of small round cells and polymorphonuclear leukocytes. Numerous gland tubules. Swelling of lymph spaces with wide separation of muscle bundles.

bladder wall becomes thin and cicatricial, almost like tissue paper. Fatal peritonitis has developed under such circumstances. Beer recommends the use of the monopolar current instead of the bipolar current in questionable cases. A résumé of the clinical symptoms and results of treatment in our eight cases is appended.

Figures 1, 2, and 3 are from sections made through areas of interstitial cystitis from portion of bladders removed by segmental resection (courtesy of Dr. A. C. Broders). The chronic inflammatory process with typical granulation tissue formation is present in all three sections though varying somewhat in extent and degree.

REPORT OF CASES

*CASE 1.—H. C., single, age sixty-two years. Was seen in consultation October 1, 1921, complaining of painful and frequent urination. Nocturia four to five times every night. Hematuria in small amounts had occurred a few times. There had been no renal colic, but she complained of pain over the lower lumbar spine. These symptoms had persisted for a period of over two years.

Several cystoscopic examinations had been done and many attempts to control the dysuria by medication and by local treatment of the bladder.

General physical examination was negative. Blood pressure was 140/80, temperature 98.2, urine showed a few red cells and an occasional leukocyte. Wassermann was negative.

Examination under general anesthetic revealed a small, narrow lesion in the right wall which bled easily. Indigo carmine appeared in three minutes from each side in strong concentration. Both ureters admitted catheters the normal distance and clear urine was recovered from each side.

Electrocoagulation of the ulcerated area was carried out. The improvement was immediate and marked.

The patient's physician communicated with us fourteen months later, stating that there had been no recurrence of the trouble.

*CASE 2.—B. W. S., a widow, sixty-one years of age, was examined August 1, 1921. She had borne one normal child and had undergone a pelvic operation twenty-five years previously. Her complaint was pain in the bladder region, marked frequency and nocturia (eight times) of two years' duration. There was no renal colic, no hematuria. She also complained of chronic constipation and overweight (210 pounds). The general examination was essentially negative. Blood pressure was 170/90. Catheterized bladder specimen showed a few hyaline casts, a few leukocytes and red blood cells.

Cystoscopy revealed a small ulcerated area in the right bladder wall. Both ureters admitted the catheters the normal distance and normal urine drained from each side. The ulcerated area was electrocoagulated, but this was done incompletely on account of severe pain. Ten days later she was again subjected to more thorough electrocoagulation under anesthesia. The frequency cleared up rapidly following this fulguration. The patient was well one month following, but she has not been heard from since.

*CASE 3.—L. E., a married woman, age thirty-eight, consulted us January 16, 1923, because of marked frequency and nocturia of eight or ten times a night. She had one child eleven years old. There had been a curettement done in 1920 and an ovarian operation in 1922 for relief of severe pain over the bladder area, which was accompanied by very marked frequency. A previous cystoscopic examination had revealed nothing abnormal in the kidneys or bladder.

The general examination was negative. Urinary examination showed a few pus cells. Wassermann negative. A cystoscopic examination showed a small bladder capacity. Catheterized urine was clear. A congested area, one centimeter wide, two and a half centimeters in length, was seen in the dome of the



Fig. 2.—Surface epithelium almost completely intact. Leukocytic infiltration predominant with extensive perivascular infiltration. Rather marked connective tissue formation.



Fig. 3.—Surface epithelium intact. Considerable thickening of submucosal area, with diffuse infiltration of small round cells and leukocytes. Wide separation of lymph spaces.

bladder. When this area was touched with the catheter the patient complained of intense pain. Electrocoagulation under gas and oxygen anesthesia was done a week later. The first voiding after the fulguration took place in six hours. She had the first night of undisturbed rest she had experienced in three years.

Three months later she again complained of pain and frequency, and a small ulcerated area was again electrocoagulated. Another electrocoagulation was done in three months' time. She reported marked improvement over the original symptoms, but not complete relief.

The patient moved to Baltimore and was seen there by Doctor Hunner. A letter from Doctor Hunner in February 1924 stated that the ulcer still persisted in the vertex and that he intended to apply 10 per cent nitrate of silver directly to this area.

* CASE 4.—V. J. M., age forty, married, was examined July 10, 1925. She gave a history of painful and frequent urination of five years' duration.

During the first two years she had had several electrocoagulations and many bladder irrigations done elsewhere, with only temporary relief. Eleven months previous a wide resection of the ulcerated area had been done, with marked improvement for a period of eight months, after which frequency and bladder irritation returned. The pain was most severe just at beginning of menstruation. There was no kidney colic and no hematuria. She was unable to go to the theater or take automobile trips of any length, due to frequent desire to void.

Cystoscopic examination under an anesthetic showed a bladder of small capacity. The mucosa looked normal with the exception of vascular injection of the trigone. The operative scar was well healed. The urine was clear. The trigone, the lower part of the bladder neck and inner portion of the floor of the urethra were lightly fulgurated without improvement.

* CASE 5.—R. W., married, age forty-six years, was seen in consultation April 8, 1927. She complained of pain and frequency of urination. During the last two years she had suffered from pain on slight distention of the bladder so that there was frequency every few minutes during the day and about every hour during the night. There was no renal pain, no hematuria; weight loss was ten pounds in two years. She had two children, both in good health. Perineorrhaphy one and a half years previously.

X-ray of the urinary tract was negative. The urine showed a moderate number of pus cells and a few red blood cells. Cystoscopic examination under anesthetic showed a moderate cystitis over the bladder base. Bleeding occurred on slight overdistention, and this could be seen coming from an elongated rent in the mucosa located on the right wall and extending to the dome of the bladder. Both ureters were catheterized and drained clear urine.

The ulcerated area was electrocoagulated. A few bladder irrigations followed this treatment. The improvement was very marked and the patient remained free from her trouble up to February 1929, when the former symptoms recurred in about the same severity. Examination February 11, 1929, again showed the ulcer area in the dome and right wall. Electrocoagulation was again followed by spectacular relief.

* CASE 6.—G. W., single woman, fifty-seven years of age was seen September 30, 1927. She had suffered from bladder distress and frequency for seven years. Her father was a physician in New Jersey and she had been carefully examined cystoscopically and had been given many trials with local treatments. No pathology had ever been found to explain her trouble.

General physical examination was negative. She was extremely nervous, due to loss of sleep, and had lost considerably in weight. Voiding was so frequent that her social life had been entirely abandoned. She was disturbed four to five times at night and fifteen to eighteen times during the day. There had been no renal colic and no hematuria. Examination of the urine was negative.

Cystoscopic examination under gas anesthesia showed a bladder of small capacity. Bleeding occurred on moderate distention. In the dome were seen streaks of blood coming from an area about three centimeters in length, and one centimeter in width. This area was electrocoagulated. The improvement was so marked that she had the first good night's rest she had had in many years. She began to gain in weight and was able to resume her usual social life. A check-up examination seven months later showed clear urine with a bladder capacity of eight ounces.

In October 1928, one year following, she again complained of moderate frequency, and cystoscopic examination showed an area of ulceration in the dome which was electrocoagulated. One month after this application the bladder held twelve ounces without distress. Five months have now elapsed without return of the symptoms. On account of the rather spectacular relief of their great distress these patients are usually very grateful.

* CASE 7.—V. M., married, age thirty-three years, was seen April 17, 1928. General history and examination of no consequence except for a gonorrheal infection fourteen years previously and a bilateral pyelonephritis for which renal lavage and bladder irrigation had been done with some improvement. She had suffered from bladder distress and frequency for years. At the present time she complained of frequency, two to three times at night and every two hours during the day. There was dull pain in both kidney regions. The blood pressure was 115/80. The urine contained a moderate number of pus cells and a few red cells.

Cystoscopic examination under anesthesia showed bleeding on moderate distention. Both ureters were

TABLE 1.—*Résumé of the Clinical Symptoms and Results of Treatment in Eight Cases*

	Age	Sex	Single, Married or Widowed	Duration of Symptoms	Character of Urine	Location of Lesion	Form of Treatment Instituted	No. of Treatments Necessary to Evolve Initial Symptomatic Cure	Duration of Relief
1	62	F	S	Two years	Few red cells Occasional leukocyte	Right wall	Transurethral electrocoagulation	One	Fourteen months
2	61	F	W	One year	Few red cells	Right wall	"	Two	Impossible to trace
3	38	F	M	One year	Few pus cells	Dome	"	One	Three months
4	40	F	M	Five years	Trigone and floor of bladder neck	Had previous electrocoagulation and segmental resection	No relief following electrocoagulation	Not traced
5	46	F	M	Two years	Moderate pus cells; few red	Right wall	Transurethral electrocoagulation	One	Ten months
6	57	F	S	Seven years	Negative	Dome	"	One	Twelve months
7	33	F	M	Several years	Moderate number of pus and red cells	Right wall	"	One	No recurrence to date—eight months
8	42	F	M	Twenty years	Occasional red cell and leukocytes	Right wall	"	One	No recurrence to date—ten months

catheterized. There was no evidence of obstruction in either ureter and each specimen contained a moderate number of pus cells.

There were two small papillomatous growths in the center of the bladder toward the dome. To the right of these growths were seen two small, salmon-red areas from which drops of blood could be seen. Even under anesthesia the patient had marked muscular contractions when electrocoagulation was applied. The small papilloma responded easily to fulguration.

The bladder irritation improved immediately, but the urine showed numerous pus cells. During the following several months bilateral pelvic lavage and bladder irrigations were carried out, but the urine constantly showed from a few to many pus cells from each kidney.

Cystoscopic examination November 16, 1928, eight months after fulguration treatment, showed no recurrence of the papillomas or ulcers.

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CASE 8.—R. O., married, age forty-two years, was seen May 30, 1928. She complained of marked frequency and severe pain just above the symphysis pubis. She had not been free from frequent and painful urination for over twenty years, and during this period of time five abdominal operations had been performed without improvement. She had not spent a single night without voiding, sometimes as often as ten to fifteen times.

Cystoscopic examination made under gas anesthesia showed a fairly large cyst in the internal sphincter. Both meatuses looked normal, the trigone was negative. The urine showed an occasional red cell and a few leukocytes.

High up on the right wall was an ulcerated area, about one centimeter in length and half a centimeter in width. The bladder bled easily upon distention with fluid. The ureters were not catheterized. The cyst as well as the ulcerated area was electrocoagulated.

The following morning the patient stated that she had experienced the first freedom from pain in over twenty years. There has been no recurrence of symptoms up to this writing, March 1929, ten months later, 1136 West Sixth Street.

DISCUSSION

WILLIAM E. STEVENS, M.D. (870 Market Street, San Francisco).—There are few, if any, diseases of the urinary tract which have been described under so many different names as the condition which Peterson and Hager choose to call interstitial cystitis. Elusive ulcer, Hunner's ulcer, submucous cystitis, panmural cystitis, panmural circumscribed ulcerative cystitis, cystitis infiltrans circumscripta and cystitis parenchymatosa are other designations used by various writers, but I believe, with Peterson and Hager, that interstitial cystitis is the preferable term. Raschkis of Vienna and other European urologists regard this condition as merely one type of chronic cystitis, but the great majority of American urologists agree with Peterson and Hager in classifying it as a separate entity. Skene, in his book on diseases of the bladder and urethra in women, published as long ago as 1887, used the term "interstitial cystitis."

This condition is almost always found in the fundus or walls of the bladder and, unlike other types of cystitis or ulcer, it is much more common in women. I treat about an equal number of pathologic conditions of the urinary tract in both sexes and have seen several cases of interstitial cystitis in women, but none in men. I use both the lens type of cystoscope with water distention of the bladder and the direct Kelly method of cystoscopy with air distention in the examination of female patients. The etiology of this condition is uncertain, but in view of its greater frequency in women the correctness of Hunner's theory that distant foci of infection, such as the teeth, tonsils, and sinuses, are the principal factors is questionable.

In my experience bilateral pyelonephritis has been more common in women than in men, but I do not understand how this disease could have any special connection with this particular type of lesion.

Occasionally no ulcer is present and at other times the ulcer is so small that it is hardly visible. Unlike more common forms of bladder-wall pathology a submucous fibrosis always predominates in interstitial cystitis, its thickness and extent depending on the degree of the inflammatory process. Other important factors to which Peterson and Hager call attention in their discussion of the symptomatology and diagnosis

of this condition and which are worthy of special emphasis are: frequency of urination, pain out of all proportion to the cystoscopic findings, and marked decrease in the bladder capacity. At times very few, if any, pus or blood cells are found in the urine. Urethritis, which is usually associated with this condition, is at times partly responsible for the symptoms and should receive appropriate treatment.

Tuberculosis and syphilis of the bladder, the latter rare, should always be ruled out.

An occasional case will apparently respond to almost any method of treatment. Others seem to be incurable.

Peterson and Hager are to be congratulated on the excellent results following their treatment by fulguration, all of their patients, with one exception, showing initial symptomatic cure.

Kretschmer has also obtained good results following this method of treatment, but believes that recurrences are not so common following resection.

Resection is preferred at the Brady Urological Institute although deep fulguration is first tried.

Favorable results have been reported from distention of the bladder and the instillation or direct application of silver nitrate solution.

Intra- and extra-urinary foci of infection should always be eradicated if possible.

Improvement followed dilatation of the bladder and the instillation of basic fuchsin solution in one of my cases. Another responded to dilatation and the direct application of 10 per cent silver nitrate solution.

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FRANK HINMAN, M. D. (384 Post Street, San Francisco).—I think that the condition under discussion should be called after Hunner, who first described it. If we all speak of a Hunner lesion, we will all know what is being talked about. The condition is quite a definite entity and occurs in the bladder with certain typical characteristics. An important one of these that has not been mentioned is its tendency to occur in a line or linear formation which may be interrupted, so far as its activity is concerned. Overdistention of the bladder will bring out these separate lines of pin-point hemorrhage. Usually the lesion arches across from above one ureteral orifice to the corresponding region above the opposite orifice. There may be slight areas of inflammation branching off from this main arch. I have seen four or five typical cases in men. Usually the bladder urine is negative microscopically and bacteriologically. Fulguration has given me the best results in the treatment of the condition.

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ROBERT V. DAY, M. D. (1930 Wilshire Boulevard, Los Angeles).—No one seems to have thought much of the etiology of the interstitial ulcer except that it is produced by a hematogenous infection originating in a distinct focus of infection. No consideration is brought forth as to what determines the localization of the infection in the bladder wall. Almost every patient I have seen with this lesion, gave a history of being in the hospital and of being catheterized for a number of days or weeks during such stay in the hospital. The technique of catheterization of women in the hospitals is reprehensible. In the first place the bed sags down, the position is bad, and the usual light is insufficient. Next, soap and water, and finally lysol are usually employed, leaving a puddle of fluid around the fourchette which undoubtedly contains much pathogenic bacteria. Finally, a male catheter is used and introduced too far so that it shunts off laterally on one side or the other and traumatizes the wall of the bladder in about the situation that represents the center of the Hunner lesion.

As to treatment, I think most of us have gotten away from a wide resection; except in desperate cases, as a last resort. Good results have followed fulguration; but one wonders if the good results were not entirely due to the overdistention incident to the fulgurating under an anesthetic. Personally I have had just as good results from overdistention as from fulguration. It is difficult to believe that the increased scar from the fulgurating can finally be of any benefit.

ANESTHESIA IN THE SMALLER COMMUNITIES*

By R. G. HENDERSON, M. D.
Long Beach

PROBABLY no influence has been greater in broadening the field of surgery than the discovery and introduction of ether as an anesthetic in 1846. Operative procedures were thereafter made possible which could not have been attempted before that era. The future of surgery depends just as markedly upon progress in methods and the discovery of new anesthetic substances. Upon the anesthetist of the future rests the responsibility of contributing his share to the progress of surgery.

Progress in the art of anesthesia has been rapid during the past twenty-five years. Perfection of apparatus and the introduction of additional anesthetic substances, available for general anesthesia, have given new impetus to the specialty. The trained anesthetist is now a necessary part of the surgical team and upon his skill often rests the success or failure of the operation.

The problem of making available satisfactory service in anesthesia for surgeons generally should receive thought and attention. In the larger cities, especially in large clinics, the problem has been solved. Full-time anesthetists are there employed who can devote all their energy to building up the service to a high degree of excellence. This is as it should be, and is ideal. I believe, however, that even under such conditions anesthetic service should extend beyond the realm of inhalation methods.

Spinal anesthesia, sacral and perisacral anesthesia should be administered by a competent anesthetist. The majority of surgeons are not interested primarily in the administration of anesthetics, but are forced to give spinal anesthetics because no anesthetist trained in their use is to be had. Skill in this type of anesthesia would broaden the field for one whose entire time is not taken up in giving other types of anesthesia.

In communities of medium size, where there is not enough anesthesia given to utilize all one anesthetist's time, other work could be employed. Gas therapy at present seems to be a closely allied side line which should interest anesthetists, and, oxygen therapy in pneumonias and other respiratory affections. Carbon dioxide is being used to deëtherize patients; also in the therapy of persistent hiccough. Where mornings only are used in the operating room, arrangement can be made to administer in the afternoon dental anesthetics, or anesthetics for short operative procedures for otolaryngologists. I have known some men to combine anesthesia with a medical specialty, as cardiology, quite successfully.

The problem of anesthesia service becomes increasingly difficult the smaller the community. In the past two years several inquiries have come to me regarding this situation. Many surgeons have

*Chairman's address, Anesthesiology Section, California Medical Association, at the Fifty-Eighth Annual Session, May 6-9, 1929.

been forced to employ lay anesthetists because no professional man interested in this specialty was present in the community. It seems to me that a greater effort should be taken to interest interns in anesthesia. Especially should they be instructed thoroughly in the use of gas anesthetics. Special short courses in anesthesia could be arranged in the larger clinics, where those who wished, could receive training. This would be far more instructive than a demonstration of apparatus by commercial houses whose interest terminates with the sale of a gas machine, the buyer using the apparatus on his own responsibility.

Two or three small communities, situated a few miles apart, might keep one trained anesthetist busy. Or, as suggested before, some other line could be pursued in conjunction with anesthesia. An endeavor should at least be made to increase the knowledge of anesthesia among medical men so that better anesthesia will be more generally available in the smaller localities.

Bank of Italy Building.

TOTI-MOSHER OPERATION IN OBSTRUCTION OF THE NASOLACHRYMAL DUCT*

REPORT OF CASES

By R. C. MARTIN, M.D.

AND

F. C. CORDES, M.D.

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DISCUSSION by M. F. Weymann, M.D., Los Angeles; Roderic O'Connor, M.D., Oakland; H. J. Hara, M.D., Los Angeles; Barton J. Powell, M.D., Stockton.

UNTIL recent years dacryocystectomy has been the only relief we have been able to offer patients with a chronic suppurative dacryocystitis. In simple epiphora, without infection, due to obstruction of the nasolachrymal duct, a small percentage of patients are relieved by probing. In the majority of these cases no permanent relief is obtained; they are benefited for only a short time and then return with their former symptoms.

It has been said that dacryocystectomy gives satisfactory results. It is true that the chronic inflammation of the conjunctiva is relieved by this procedure, the eye is no longer bathed in pus, and under ordinary circumstances there is no epiphora. Most of these patients, however, are not altogether happy. When out of doors on a cold day, or when the wind is blowing, they complain of the annoyance of the eye watering. In some instances this is sufficient to warrant partial extirpation of the lachrymal gland.

We feel that an operation of the Toti-Mosher type, in properly selected cases, gives excellent results, and from the patient's point of view, far superior results to extirpation of the sac. There are, however, certain contraindications that must be kept in mind.

It is absolutely essential that there be no stricture between the punctum and the sac, as this

will, for obvious reasons, produce a failure. It has been surprising to see the relatively large number of these cases in which this type of stricture is present. It is desirable to avoid slitting the canaliculi.

In cases where cleaning up a lachrymal infection is a preparation for a cataract extraction, this type of operation is not indicated. Following the Toti-Mosher, there is no doubt but that the conjunctival sac is more exposed to possible infection from the nose. Consequently, it would seem poor judgment to perform, preliminary to a cataract extraction, an operation that would increase the hazard of infection.

From our small series of cases, we have found that a chronic suppurative dacryocystitis of long standing is no contraindication. In our first patient, a boy of ten, the chronic suppurative process had been present for four years. In several instances this condition had persisted for three or four years. In one patient there was a history of a bilateral chronic dacryocystitis of eight years' duration. The enlarged thickened sac does not complicate the operation, but rather facilitates the finding of the sac.

Judging from our one failure, extirpation of the remaining portion of the lachrymal sac is not complicated by a previously performed Toti-Mosher operation.

While these patients as a rule consult the ophthalmologist, we feel teamwork with a rhinologist has a decided advantage. A large portion of the work is primarily nasal, and in a certain percentage some preliminary intranasal procedure is necessary. Observation has shown that where these patients are operated upon by the ophthalmologist there is a much larger percentage of poor results. This is due primarily to a failure to carry out the details of the nasal portion of the operation. The ophthalmologist is, however, more competent to decide upon the advisability of the procedure and to carry out the postoperative treatment. His more intimate knowledge of the lachrymal apparatus is also a decided aid.

OPERATIVE TECHNIQUE

The technique of the operation is as follows:

At the time of the tear sac operation, or two weeks previously, any septal deviations and the anterior tip of the middle turbinate are removed; under local anesthesia, preferably. If this is not done adhesions will result from working in a narrow nose and will defeat the purpose of the operation. An incision is now made one centimeter from the inner canthus and parallel to the bridge of the nose. A curved incision or one closer to the inner canthus may result in a bow-string scar and must be avoided. The incision may be from one to three centimeters long, depending on the operator's preference. We prefer a large incision, as the scar is not bad.

The sac is lifted from its bed easily by working from above, downward and forward. Any other route of approach is apt to prove troublesome. The periosteum is always adherent at the inner canthal ligament.

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*Read before the Eye, Ear, Nose, and Throat Section of the California Medical Association at the Fifty-Eighth Annual Session, May 6-9, 1929.

The anterior ethmoidal artery may be ligated if desired. We have not done this routinely, and in only one case was the bleeding troublesome. A Mosher ethmoid curette is now plunged through the soft lachrymal bone and the opening enlarged in all directions by means of Kerrison Rongeurs, Kofler ethmoid, and Grunewald ethmoid forceps. All blocking ethmoid cells and anterior superior overhang of the middle turbinate are carefully removed.

The medial half of the sac and the upper portion of the nasolachrymal duct are carefully removed with sharp scissors so that the lateral half of the sac remains as a disk with the punctum in its middle. Care should be taken to avoid any pouching at the margins. Closure of the wound is made with interrupted black silk sutures through the skin only, except for the suture in the exact middle of the incision which includes the deeper tissue. These may be removed in forty-eight hours.

Early postoperative lavage is important, as it keeps the canal clean and prevents possible adhesions or inflammation around the opening into the nose.

The following is a résumé of the first fourteen operations. These have been observed postoperatively for at least six months, so that we feel justified in reporting the results as final. With the exception of one case, all have been seen or communicated with during the last month. In two of the cases reported a bilateral operation was done, with an interval between operations.

RESULTS OF CASES

CASE 1.—Charles G., age 10. Had discharge and watering from left eye for past four years. Has had long series of probing by various men, but without results.

Left eye showed a chronic suppurative dacryocystitis. No stricture between punctum and sac.

On May 29, 1927, Toti-Mosher operation was performed with excellent results. Complete disappearance of symptoms.

CASE 2.—Mrs. G. T., age 62, complained of discharge and watering of left eye for a number of years. No previous treatment had been given. Left eye showed a marked chronic suppurative dacryocystitis. No stricture between punctum and sac. Toti-Mosher operation, December 31, 1927. Initial results good, no epiphora or discharge. Patient returned February 28, 1928, with return of symptoms.

It was impossible to lavage through into the nose, and pressure over the site of tear sac expressed pus. A probe inserted struck against a bony obstruction; if the nasal end of the probe was slightly tilted down it passed into the nose. The condition persisted in spite of treatment, and it was found necessary to extirpate the remaining portion of the lachrymal sac. This was followed by primary healing. The failure in this case can be attributed to the opening into the nose being at too low a level.

CASE 3.—Mrs. S. D., age 48, has had epiphora of the left eye for about one year, due to a stricture of the nasolachrymal duct. She was operated upon February 10, 1928, with complete relief of symptoms.

CASE 4.—Mary S., age 40, has had epiphora for three years, accompanied by discharge of pus from

sac upon pressure. Has had a long series of probings without result. Right eye showed a chronic suppurative dacryocystitis with obstruction of the nasolachrymal duct. Was operated upon February 10, 1928, with excellent results.

CASE 5.—Mrs. R. H., age 44. Eight years ago was in automobile accident and received fracture of bones of face and nose. Since then both eyes water and pressure in corners of nose expresses pus into both eyes. Had bilateral chronic suppurative dacryocystitis. On May 1928, markedly deviated septum operated upon. On June 30, 1928, left eye was operated upon, and on August 28, 1928, the right eye. Results excellent in both eyes, with disappearance of symptoms. Because of the previous multiple fractures about the nose, some difficulty was encountered during the operation.

CASE 6.—Mr. T. B., age 27. Was seen in clinic, May 1927, with obstruction of nasolachrymal duct of the right eye. This was probed for a period with relief of symptoms for six months. In June of 1928 the stricture of the nasolachrymal duct was again present and patient was operated upon. The immediate results were good, and up to the end of July, a period of about six weeks, the patient was free of symptoms. At this time patient left San Francisco and has not been seen since.

CASE 7.—Mr. E. M. Has had watering of left eye for a number of years. The tear duct has been probed but without success. On January 1928, Toti-Mosher operation was performed. Results were good.

CASE 8.—Mary K., age 45. Right eye tear duct closed for two and a half years; has had several long series of probings without relief. On October 23, 1928, Toti-Mosher operation was performed, with relief of symptoms.

CASE 9.—Susan D., age 50. Right eye watered and discharged for a number of years. Had right-sided chronic suppurative dacryocystitis. Was operated upon October 5, 1928, with disappearance of symptoms.

CASE 10.—Violet M., age 40. Had right-sided chronic suppurative dacryocystitis of four years' duration. There was a slight constriction of the canal just before the sac. This showed no tendency to increase over a period of six months; we therefore performed an operation October 8, 1928. Up to the present time patient has remained free from symptoms.

CASE 11.—Anna B., age 58. Has had epiphora of several years' duration in both eyes. Examination showed a bilateral chronic suppurative dacryocystitis with stricture of the nasolachrymal duct. On October 9, 1928, operation was performed on the left side, and on October 15, 1928, on the right side, with relief of symptoms on both sides.

CASE 12.—Mrs. Mary K., age 40. Right eye has watered several years; has had series of probings. At the last series the pain was so severe that patient left her physician before he had finished. Examination showed stricture of nasolachrymal duct. Patient was operated upon in October 1928. Results were good, with disappearance of symptoms.

SUMMARY

In the series here reported, the Toti-Mosher operation has been performed fourteen times. With one exception, these patients have all been kept under observation from six months to two

years, and have all been seen or communicated with during the last month. Of this series there has been only one failure, and this, as previously explained, was due to faulty technique.

Five of these patients had been probed over varying amounts of time without relief.

In presenting our results, we realize that it is rather a small series of cases from which to draw conclusions. The results, however, have been sufficiently good to warrant our belief that, in properly selected cases, the Toti-Mosher is the operation of choice.

384 Post Street.

DISCUSSION

M. F. WEYMANN, M.D. (903 Westlake Professional Building, Los Angeles).—Doctors Cordes and Martin are to be congratulated upon the high percentage of cures in their series. Their success is undoubtedly due to exact observance of the details of technique. I agree with them that extirpation of the sac is still the operation of choice before intra-ocular operation, and in individuals where the puncta or canaliculi have been damaged, or where the sac is excessively scarred. There can be no question but that we should prefer dacryocystorhinostomy in selected cases, and the cases suitable for this operation will be much greater in number if we discontinue such mutilating procedures as slitting the canaliculi and forcible probings before recommending dacryocystorhinostomy. X-ray photography of the sac after filling with bismuth emulsion, as described by Ewing, should be of assistance in the selection of cases. Having decided that operation is needed, the question arises which of the several procedures for dacryocystorhinostomy offers the best chance of success. The main types are the intranasal operation of which the West is an example, and the combined external and internal procedure of which the Toti-Mosher and the Dupuy Dutemps operations are examples.

Wojatschek reports twenty-two successes out of thirty-two West operations and four successes out of nine Toti operations. There is no difference in the cosmetic result. By success I mean cure of infection and epiphora. Harrison reports twelve successes out of fifteen West operations which were followed for some period of time. Gillum observed three cases treated by the West operation, which remained cured after nine years. Hessberg found only four patients out of thirty-five operated by the Toti procedure who showed lachrimation. Lange reports twenty-three cures out of twenty-nine operations with the Toti procedure. He believes it equal to the West and easier to do. Erik Knutson reports eighty per cent of cures out of sixty-one West operations. Dupuy Dutemps in 1924 reports 299 operations by his technique with 92.3 per cent cures. However, only twenty-seven cases were observed over one year. This operation is very similar to Mosher's modification of Toti's procedure. Doctor Mosher, in a recent communication, reports successful cure of pus infection and tearing in 85 per cent of cases operated at the Massachusetts Eye and Ear Infirmary by his technique. He stresses the removal of the anterior ethmoid cells and the correction of high deviation of the septum, if present.

From an analysis of the above figures we may conclude that any of the well-accepted procedures offers about 80 per cent chance of successful cure. Toti himself in 1927 describes the modifications and various procedures for dacryocystorhinostomy and states that it remains to be determined which procedure is best. It would seem that we need not fear to advise any of the above methods; the greatest success will follow the use of that technique in which an operator is most proficient.

RODERIC O'CONNOR, M.D. (1904 Franklin Street, Oakland).—This paper is complete, and no one who has had experience with the unmodified Toti can disagree with it in any respect.

Therefore, in describing my results and troubles with the unmodified Toti, the intention is to emphasize the following statements made in the paper:

1. The importance of teamwork with the rhinologist. In seven of my fourteen operations, repeated S. O. S.'s for intranasal help were necessary. Much of this trouble probably could have been avoided had the intranasal work been done as a preliminary. The prolonged after-care in these seven cases was so annoying that I have not performed the operation since before Mosher announced his modification.

2. Early postoperative lavage is most important. In this connection I might be able to add one idea in regard to the pressure dressing advised by Toti. In my early cases this was used with several temporarily occluded canaliculi resulting. So it was abandoned for a simple protective dressing, with early probing and lavage.

As it happens my total number of operations is the same as that listed in this paper (fourteen). Out of this number there was one failure to relieve the epiphora and in this one, fluid could be syringed freely into the nose. In none was extirpation of the sac required. While on this thought I might mention that I prefer to us Gifford's destruction of the sac lining by trichloroacetic acid. It gives uniformly successful results, can be done as an office procedure, the patient loses practically no time, and it costs him much less in other respects.

I feel sure that this paper is going to encourage me to again take up intranasal drainage of the lacrimal sac, and for that encouragement I wish to thank the authors.

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H. J. HARA, M.D. (432 South Boyle Avenue, Los Angeles).—Some years ago Dr. H. P. Mosher reported in the *Annals of Otolaryngology, Rhinology, and Laryngology* the analysis of the follow-up work in those cases of chronic dacryocystitis in which the Toti-Mosher operation was performed at the Massachusetts Eye and Ear Infirmary. He reported 90 per cent cure for suppuration and 75 per cent relief for epiphora.

I have recently returned from Doctor Mosher's clinic. During my stay there, extending over a period of a year, I have had ample opportunity to observe a number of these cases of chronic dacryocystitis both before and after the operation, and am quite certain that in these later cases his results are still better.

The literature sheds little light on the pathogenesis. Primary dacryocystitis is said to be rare. In the series I have studied at the infirmary, about one-third of the cases were among Italian women. Experience has shown that these particular people are notoriously subject to disorders of the nose and paranasal accessory sinuses. Might not, then, the underlying factors that bring on the disturbance of the normal function in the nose and throat also play a part in the causation of the dacryocystitis? Viewed in this light, the problem is for the rhinologist as well as the ophthalmologist.

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BARTON J. POWELL, M.D. (Medico-Dental Building, Stockton).—Doctors Martin and Cordes have accomplished a service in reporting these cases. They have given encouragement to those of us who are seeking a better method for the relief of these unfortunates. Acknowledging that the usual method of slitting, probing and syringing is not only painful, slow and too often unsatisfactory, the oculist has constantly sought something better.

Meller of Vienna, an instructor of many of us, taught us to extirpate the sac and curette the duct. After following this teaching for many years, it too was found more or less a failure.

In a limited number of cases my associate and brother, Dr. Dewey R. Powell, and I, have been using the Toti-Mosher operation and intend to follow up this procedure in the future in selected cases.

PULMONARY TUBERCULOSIS IN INFANTS AND YOUNG CHILDREN—ITS CLINICAL DIAGNOSIS*

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DISCUSSION by Lloyd B. Dickey, M.D., San Francisco; F. M. Pottenger, M.D., Monrovia; E. W. Hayes, M.D., Monrovia.

PULMONARY tuberculosis in infants and young children presents a very different clinical picture from that seen in adults. The confusion regarding the diagnosis of this disease in young patients indicates a lack of familiarity with the pathology and with the interpretation of the various clinical signs.

Tuberculosis in the infant is an infection which occurs on virgin soil. One has the opportunity of witnessing the development of a disease in a subject not previously infected, in whom allergy to tuberculosis has not developed. This is a very different disease from tuberculosis as a later infection in a patient in whom allergy has developed.

Krause¹ has compared tuberculosis in the infant to experimental tuberculosis in the guinea pig, and tuberculosis in the adult to experimental tuberculosis in the rabbit (see Fig. 1). If a normal guinea pig is inoculated with virulent tubercle bacilli it is noted that the bacilli appear in the lung in a few minutes but that they do not stop in the lungs, but travel immediately to the tracheobronchial lymph glands and localize there, causing lymph glandular tuberculosis. In the normal rabbit similarly inoculated, bacilli are caught in the lung by the presence of a considerable amount

of lymph glandular tissue within the lung parenchyma, and, consequently, tuberculous infection develops in the lung with very little glandular reaction. Tuberculosis in the infant infected for the first time resembles that seen in the guinea pig, whereas tuberculosis in the older child or adult follows the picture seen in the rabbit.

With this in mind, the course of the disease in the infant may be more clearly followed. We may accept the idea now generally held that the initial infection occurs in the lung parenchyma. However, this primary focus is so small and the reaction is so insignificant that it cannot be made out by any method of physical diagnosis, although it can sometimes be recognized by the fluoroscope or by the x-ray. By the time the symptoms have developed, involvement of the tracheobronchial glands is present and may usually be detected by appropriate methods.

It should be emphasized that the diagnosis of tuberculous infection in a young subject can be made with reasonable certainty, but that this diagnosis should not be made on the basis of an x-ray film or any other single procedure, but by a careful study of the patient as a whole, including the history, contact, symptoms, careful physical examination, tuberculin test, study of the blood picture and the x-ray. By an analysis of all these findings, one can arrive at a diagnosis of the type of infection and the prognosis may be determined.

CONTACT

The infant and young child not previously infected present a fertile soil for infection with the tubercle bacillus. For this to take place, however, there must be a close and intimate exposure with an open case. It is possible for infection to occur from soil or an infected house, but in the vast majority of cases human contact is essential. For this discussion, milk-borne infection need not be seriously considered, as pulmonary tuberculosis is essentially an infection with the human type of organism.

A history of contact cannot always be readily determined. One reason for this is the peculiar attitude existing among the laity regarding this disease. It is looked upon as rather a disgrace to have tuberculosis in the family and the matter is usually suppressed. Close questioning will often reveal a chronic cough or "weak lungs" or "bronchitis" in some member of the household where a flat negative reply has been given to the question of tuberculosis.

Infection does not always come from a member of the immediate family. It may come from a relative who visited the household for a short period, or from a servant, nurse, or cook who served a short term with the family. Considerable detective work may be necessary to elicit the source of infection, but it can usually be accomplished.

SYMPTOMS

The symptoms of tuberculous infection which occur in the adult are chronic cough, expectoration, hemoptysis, night sweats, loss in weight, fever and fatigue. All of these, except fever and

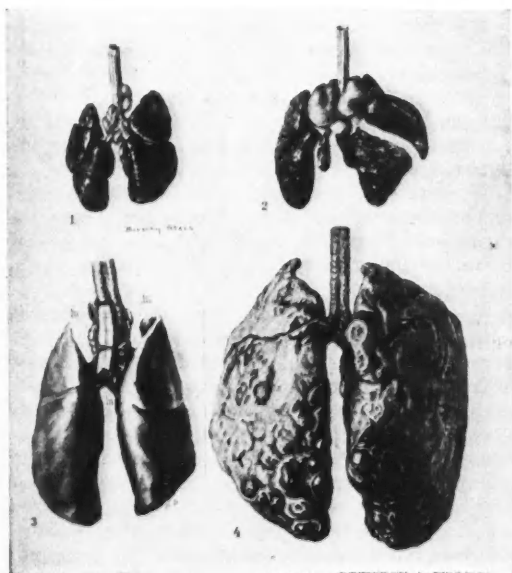


Fig. 1.—Normal and tuberculous lungs and tracheobronchial lymph nodes of guinea pig and rabbit compared. 1. Guinea pig, normal. 2. Guinea pig, tuberculous. 3. Rabbit, normal. 4. Rabbit, tuberculous. (From Krause.)

* Read before the Pediatrics Section of the California Medical Association at the Fifty-Eighth Annual Session, May 6-9, 1929.

fatigue, are absent in the young child. The characteristic symptoms in the infant and young child are the following: lack of appetite and indifference to food; fever, highest in the afternoon; gastro-intestinal disturbances, as attacks of diarrhea or occasional vomiting; nervous symptoms, as wakefulness, restlessness, and irritability; failure to gain rather than an actual loss in weight, although this may occur; fatigue; poor color; and, in some instances, cough. Any child who runs a low-grade elevation of temperature not satisfactorily explained, who tires easily, who is wakeful and restless and has loss of appetite, should be under suspicion for tuberculosis until proved otherwise, even in the absence of known contact and a negative physical examination. All such cases should have a tuberculin test and an x-ray to determine the presence or absence of infection.

TUBERCULIN TEST

This test, invaluable in determining tuberculous infection, suffers from general misinterpretation. The test gives either a positive or a negative result. A positive indicates that tuberculous infection has taken place. It gives no idea of the character of the infection, whether mild or severe, whether active or inactive, nor does it give any aid as to prognosis. It simply indicates that a state of hypersensitiveness of the tissues to tuberculin exists as a result of a previous infection. Tubercle is present somewhere in the body. In a very young child tuberculous infection is usually active, therefore if changes are found in the lungs or in the glands in association with a positive test, one may assume that these changes are due to tuberculosis, especially if they are characteristic. Moreover, a positive test can be obtained in practically all cases of tuberculosis in infants and young children. Tuberculin hypersensitiveness is depressed during intercurrent infections, as measles, influenza, and in overwhelming infection, as miliary, but a positive test can nearly always be obtained if a sufficient amount of tuberculin is administered. For this reason the Pirquet test has been discarded in favor of the more accurate intradermal test. One generally gives 1/100 milligram intradermally. If the test is negative it is repeated in a few days, using 1/10 milligram. If necessary one milligram may be given. Such dilutions may be made from old tuberculin, or the dilutions may be purchased from pharmaceutical houses. The stock dilutions vary greatly in potency. To insure accuracy in tests, each fresh bottle should be tested on a known positive reactor, and the dilutions should not be kept too long.

TYPES OF PULMONARY TUBERCULOSIS IN CHILDREN

The types of pulmonary tuberculous infection most frequently encountered in infants and young children are: 1. Primary infection. 2. Glandular tuberculosis. 3. Hilum tuberculosis. 4. Caseous pneumonia. 5. Miliary tuberculosis. 6. Eptuberculosis.

The scope of this paper will not permit a detailed discussion of these various types, for which

special articles must be consulted. A brief summary of the essential clinical features will be given.

Primary Infection.—This occurs in the parenchyma of the lung. There are no physical signs except those of general infection, as stated above. The infection does not remain in the lung, but appears simultaneously in the tracheobronchial lymph glands. The primary focus can be detected later in the x-ray after calcification has taken place and it has healed.

Tuberculosis of the Tracheobronchial Lymph Glands.—The reaction in these glands occurs early and can be detected by the x-ray. There are no characteristic physical signs of enlargement of these glands. The D'Espine sign is not reliable and the enlargement is usually not sufficient to cause parasternal dullness. A brassy cough is often present and is a very important sign. The combination of the symptoms, fever, positive tuberculin test, and x-ray, will establish the diagnosis. The glandular reaction may produce other signs by extension or by pressure. Collapse of part of the lung or massive collapse of one whole lung may occur. The physical signs and x-ray findings in these are characteristic. The glands may press on the trachea producing a foreign body reaction with narrowing of the tracheal lumen, which can be detected by bronchoscopy. Air trapping, due to pressure of tuberculous tracheobronchial lymph glands, may be made out. All of these complications are relatively uncommon.

Hilum Tuberculosis.—By this is meant a lesion involving the parenchyma of the lung near the hilum. This is a characteristic reaction in the lung in young children. It is a question whether the process is an extension from a tuberculous focus in the lung or from the bronchial glands. This point is, however, academic. The reaction in the lungs presents in the x-ray a triangular shadow with the base at the hilum and is absolutely characteristic. Physical signs depend on the extent of the lesion. They may be lacking, or impaired percussion note and diminished breath sounds without râles over the involved area may be made out. There is no marked cough and no expectoration. The process may advance to caseous pneumonia or may clear. The x-ray picture is essential to the diagnosis. Successive examinations are necessary to follow the course of the disease and as an aid to prognosis.

Caseous Pneumonia.—In this condition there is high fever with signs of consolidation, impaired percussion note, diminished breathing or tubular breathing with râles. If excavation occurs there are signs of cavity. Cavity may be present in very young infants. The sputum in such cases is coughed up and swallowed, but it may be caught on a piece of gauze wrapped around a finger, or by passing a stomach tube and a slide preparation made. This is an important diagnostic measure which is not commonly employed. The condition must be differentiated from unresolved pneumonia by the course, tuberculin test, and the x-ray.

Miliary.—This may occur as (a) miliary tuberculosis limited to the lungs only; (b) generalized

miliary tuberculosis without meningitis; (c) generalized miliary tuberculosis with meningitis. The signs of a generalized infection are present with fever, usually enlargement of the spleen, and a polymorphonuclear leukocytosis.

There are usually no physical signs in the lungs in uncomplicated miliary tuberculosis. This is probably due to the fact that the small area of tubercle is surrounded by normal lung containing air. The tuberculin test is positive in the great majority of cases if sufficient amount of tuberculin be used (see above). The x-ray picture is characteristic. Infants with miliary tuberculosis may appear in good nutrition for many weeks and the process may extend over a period of months before death occurs. Where meningitis is present the symptoms and signs are those peculiar to this condition, and the spinal fluid is invaluable as a diagnostic aid, especially if tubercle bacilli are demonstrated.

Epituberculosis.—This condition has been described under various names—epituberculosis, Eliasberg and Neuland; recurrent hilum pneumonia, Wessler; paratuberculosis, Engel; perifocal infiltration, Wolff, etc. It is an allergic reaction occurring in the lung around a focus of tuberculosis. The affected tissues are filled with serum and lymphocytes, but there is no tubercle. Fever and the physical signs of consolidation are present. The children do not appear very ill. This condition must be differentiated from unresolved pneumonia and from caseous tuberculous pneumonia. The process clears slowly over a period of months or years and leaves no scar. The sputum, if present, is negative for tubercle bacilli and cavitation does not occur. A marked positive skin reaction is present, as the degree of tissue hypersensitiveness is very great. The prognosis is good.

Apical tuberculosis of the adult type with fibrosis, etc., does not occur in young children, but is seen in older ones, usually past ten years. The physical signs resemble those found in adults.

Mixed Forms.—Several types of lesion may be present in the same chest; thus, a caseous pneumonia with cavitation on one side, enlarged tracheobronchial lymph nodes on the same side, and generalized miliary throughout both lungs may be coexistent. This condition may be determined by x-ray.

SUMMARY

Pulmonary tuberculosis is a common infection in infants and young children, and can be recognized in its early stages. Early diagnosis is essential for appropriate treatment. The prognosis is good unless extensive disease has developed. The prognosis also depends on early removal of the child from the source of infection. A careful history as to exposure, a thorough physical examination, intradermal tuberculin test and x-ray offer methods of making an accurate diagnosis, both as to the presence of infection and the type of infection. The reaction in the lungs in the young child differs markedly from that seen in the adult with the same disease.

523 West Sixth Street.

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DISCUSSION

LLOYD B. DICKEY, M.D. (Stanford University Medical School, San Francisco).—The difference between the clinical picture of pulmonary tuberculosis in adults and of that in infants and children should be obvious to all members of the medical profession who have seen both types of patients. Yet this difference is not fully appreciated, even among some workers in tuberculosis clinics. Students often come to the pediatric wards with the preconceived idea that if a child be suspected of having tuberculosis they should make careful inquiries, when taking the history, about hemoptysis, productive cough, night sweats, and rapid loss of weight. When performing the physical examination they expect to find changes in breath sounds, and postcough râles in the apices. The importance of calling attention to these discrepancies, such as Doctor Happ has done, cannot be overemphasized.

The laity as well should be educated to the differences. Most children examined for tuberculosis come to the physician because of a history of contact to the disease. Many more who should come fail to do so because parents do not appreciate the fact that significant symptoms in children are not the same as for themselves.

The classification that Doctor Happ uses is a very workable one for pulmonary tuberculosis in childhood, and offers a place for the many types seen. The disease, of course, may become latent in any of the first three types in Doctor Happ's classification.

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F. M. POTTENGER, M.D. (Monrovia).—In order to understand tuberculosis of childhood it is necessary to understand the *primary complex*. The primary complex consists of the primary node and the regional lymph glands which are always a part, in fact the most important part of the infection. In about 85 per cent of infections in childhood, the primary node is found in the lung.

The node in the lung may be extremely small, but the infection of the lymph glands is usually very severe, and the glands undergo marked enlargement. These foci both as a rule go on to caseation and end in calcification. In the neighborhood of the primary lung focus, and also in the lymph glands surrounding the regional glands which show most marked infection, other areas of mild infection are nearly always present. In case healing is not complete, these areas must be taken into consideration as foci for future disease.

In about one-third of the children infected, according to Aschoff, the primary infection heals completely. In two-thirds, healing does not take place immediately. In some of these the enveloping capsule remains incomplete and tuberculo-protein, as well as other toxins, escape; and gaining access to the circulating fluids produce symptoms.

The symptoms that occur in children as a result of an incompletely healed primary complex as a rule belong largely to the toxic group. Such a child has poor appetite and digestion; is usually nervous and irritable; is apt to sleep poorly; and usually develops a state of malnutrition. The reflex symptoms may or may not be recognizable. If the primary node in the lung is involved, as a rule there is a slight perifocal bronchitis, which causes slight cough; and on auscultation, râles or rhonchi may be heard. Hemorrhage, pleurisy, and sputum are rarely present.

The tuberculin test should be employed in all cases presenting such a toxic syndrome, because it may give information as to whether or not tuberculous infection is present. The x-ray should also be used

because it may show a primary nodule. It must be understood, however, that if the child is markedly cachectic, and its resistance is very low, and particularly if it is just recovering from some acute disease, the hypersensitivity of the cells to tuberculin may be temporarily in abeyance. It also must be remembered that the x-ray does not always reveal the primary node in the lung, or the infection in the regional lymph glands. Uncalcified foci and nodes do not show on the film. Positive information is the most valuable in children.

In dealing with the undernourished child showing symptoms here mentioned, it is necessary for physicians always to bear in mind that tuberculosis may be the cause. Contact is a very important thing in early childhood, but one must not forget that many children show no history of immediate contact, and still have active disease.

E. W. HAYES, M.D. (Monrovia).—I want to express my appreciation to Doctor Happ for bringing before this section this very vital, but very much neglected and little understood, phase of our tuberculosis problem. A proper understanding of pulmonary tuberculosis and its relation to the child, I feel is the key to the solution of our tuberculosis problem in general.

The primary focus of infection in the lung may be a small focal or localized area, or it may be widely diffuse, involving a whole lobe or a whole lung. This primary focus may be, and often is, surrounded by an epituberculous infiltration. The lymph nodes draining these areas are invariably involved. Such nodes are not always demonstrable by x-ray, but autopsy or later x-ray study after calcium has been deposited will reveal the involvement of the glands.

These primary lesions occur usually in infants and young children, but may occur in older persons who have not experienced an earlier infection. They are most often basal in location. They are relatively benign and tend to clear up. Characteristic signs and symptoms are usually absent. They are usually detected by history of exposure, a positive tuberculin reaction, and carefully taken stereograms. Serial x-rays differentiate them from lesions due to secondary infections in that they tend to clear up. These primary lesions may extend into a serious involvement such as tuberculous bronchopneumonia or diffuse caseous lesions.

The factors which tend to cause these lesions to extend are repeated infections of massive doses, virulent infecting bacilli, poor resistance, and poor environment.

The primary lesions which go on to more or less resorption give us the picture of the so-called primary complex with the nodule in the parenchyma of the lung and calcified hilar glands, which is the lesion most often seen in older children. During this time, until the age of at least sixteen, such a child is very susceptible to subsequent infection with the tubercle bacillus, which tends to result in the development of a malignant type of disease.

The factors which tend to cause this primary lesion to be absorbed are high natural resistance, low virulence of the infecting bacilli, removal from subsequent infection, coupled with good environment and good general health.

Once the individual has passed through the stage of primary infection and has developed an allergy, as Doctor Happ has pointed out, and later develops the disease as the result of subsequent infection, he develops a different type of disease. This type of disease is chronic and most often apical, that is, it tends to localize and form scar tissue and does not tend to involve the hilar glands. This is the adult type of disease which may be found in juveniles.

THE LURE OF MEDICAL HISTORY

MEDICAL TERMINOLOGY

By E. H. OLMSTED, M. A.

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I MUST make clear at once that I can consider the matter of medical terminology only from the point of view of a person who has had a merely classical education. Not very long ago the only classical reference I could think of which had even a faintly medicinal flavor was in Euripides' "Trachiniae," where the dying Centaur, as he hands the poison to the lady, says, "Keep it in a cool, dark place."¹ Since then I have recollected a passage in Aristophanes' "Frogs" which is concerned with an inconvenient but not dangerous intestinal disorder, but it is not very quotable.² In any case, my point is that the average student of the humanities would probably have read Hippocrates only in connection with Aristotle's theory of Catharsis in the "Poetics," and then he would have been concerned chiefly with the philosophical implications of the theory, which are a matter for nothing so much as pious regret to the medical commentator. Probably only a specialist in the history of science would have read Galen at all. It is perhaps a pity that the classicists do not take more advantage of this common ground, although they are right, it seems to me, in being more concerned with intrinsic than extrinsic values. The value of the classical authors and languages does not depend, in my opinion, upon their relation with or contributions to the things which preoccupy us nowadays. The only sound reason for learning Greek is that some of the things written in that language are still worth reading on their own account. I do not appear as an apologist for the classics on the ground that the language of modern science is a mosaic of Greek words and every medical practitioner must be familiar with a great many Greek and Latin stems or roots, even if there is some evidence that his knowledge does not extend to their inflections.

I have shown my colors and I must get on with the subject. Medical nomenclature is in a sense an epitome of the long and extremely varied history of the science and, in consequence, it acknowledges a great many linguistic sources. But the original vocabulary of European medicine was Greek, and medical nomenclature is still Greek in essence in spite of the Latinization which occurred in the Middle Ages and the later infiltration of terms from modern European languages other than English. It will be convenient to mention here the official Latinization of the related terminology of anatomy, known as the B. N. A., which was accepted by the Anatomical Society meeting at Basle in 1905. When you remember that it took a committee of the most distinguished anatomists in the world from 1889 to 1905 to complete their revision of what may be regarded as a mere department of medical terminology, it will be understood how very superficial are the criticisms that can be made in a paper of this kind. As to the work done by the committee, its confessed objects were to do away with duplica-

tion or rather multiplication of names, to make the terminology philologically correct, to make it simple and systematic in the sense that related terms should, as far as possible, be similar.

I think it will be agreed that there is plenty of room for the improvement of the terminology of medicine as a whole along all these lines, but it must be remembered that the position of anatomy is unique. It is the one branch of medical science of which the condition is sufficiently static to have warranted a more or less final revision. It is to be noticed that the committee made no attempt to settle the terminology in domains of lively contemporary clinical investigation, such as neurology, ophthalmology, otology, and laryngology, nor were the terms of microscopic anatomy included. As to the adoption of the Latin language by the B. N. A. it is to be remembered that the Latinization amounts in many cases to the Latinization of inflection. A word like sternocleidomastoideus has three, or should I say four, Greek roots.³ So anatomical terminology is only superficially distinct from the rest of medical nomenclature, insofar as its being principally Greek in origin is concerned.

We can collect some of the hoariest terms perhaps from the Hippocratic corpus. I must explain first, however, that the dialogues most generally admitted to be Hippocratic (*Epidemics i and iii, Prognostic and Regimen in Acute Diseases*) do not attach great value to diagnosis or classification. They attach more to prognosis, a sort of general pathology of morbid conditions, which assumes that there are symptoms or combinations of symptoms which point backward and forward to preceding and consequent conditions. Thus a physician well versed in prognosis could win a patient's confidence by describing the symptoms that occurred before he was called in. It is taken for granted that a Greek was argumentative even when ill, and a Greek doctor was bound to persuade his patient to undergo the proper treatment. Nevertheless many diseases are referred to by their names. We have *ἀποπληξία, τέτανος, ἐρυσίπτελας, διάρροια, δυσεντερία, φθίσις*. It will be noticed that all these terms are descriptive and the classification of disease is according to symptoms. For example, *τέτανος* is the second perfect participle of *τείνω*, to stretch, and means tense, rigid. Another case of a merely descriptive word is *τύφος* which, in Hippocrates, corresponds neither to typhus nor to typhoid, as now distinguished according to the microorganisms which give rise to them. It probably indicates a form of remittent malaria, and the word *τύφος* simply describes nervous symptoms and means "stupor." Another form of remittent malaria is called *φρενίτις*, so the "itis" can trace back an ancient lineage to Hippocrates. I do not know whether it is worth while to point out that the Greek *ιτις* merely forms the feminine of a certain group of adjectives, and as the word for disease in Greek, *νόσος*, is feminine, the adjective in the feminine was used alone where *νόσος* was implied. So arthritis is for *ἀρθρίτις νόσος* and means disease of the joints, gout. Gout, by the

way, is from the Latin *gutta*, "drop," which has the same significance as "rheum" in rheumatism. Similarly with *ναφρίτις, πλευρίτις* and *ραχίτις* our "rickets" by vowel deterioration. All these words are found in Hippocrates, and on the analogy of them "itis" has become in modern medical terminology the regular name for affections of particular parts, and especially for inflammatory disease or inflammation of a part, although there is no etymological basis for this. The usage, however, regardless of etymology, is fixed, and the late formations attach "itis" as a living English suffix to Latin as well as Greek stems, *e. g.*, appendicitis. I think the most inelegant compound in this class that I have noticed is cowperitis, named from the glands of Cowper.

While I am on this subject, I might mention the adjective "diphtheritic," which by its form preserves the term used by Bretonneau of Tours in his original paper before the French Academy in 1821, "diphtheritis" or, in French, "diphthérie." Later, but not before "diphtheritis" had been taken into English and German medical literature, he published a new memoir substituting the name "diphthérie," probably because he realized that terms in "itis" are properly formed on names of the part affected, as in bronchitis, laryngitis, etc., while diphtheria is named from the tough membrane *διφθερα* developed in the course of the disease. In spite of the change from "diphtheritis" to "diphtheria," however, the adjective "diphtheritic" seems to be generally retained in preference to "diphtheric."

I seem inadvertently to have left Hippocrates a long way behind, but I shall return to him only to dismiss him. I do not feel competent to comment on Hippocratic surgery, but it is perhaps significant that gangrene is a perfectly good Greek word, *γάγγραινα*; and it has a variety of synonyms which have not affected our nomenclature. As for Aristotle, a discussion of his physiological opinions usually occurs under the heading "Errors of Aristotle," but he seems to have been better at anatomy, and I understand that the nomenclature of his account of the uterus has been retained in a more or less modified form to this day. The Alexandrian school, founded about 300 B. C., is represented by at least three anatomical terms: "torcular Herophili" (winepress of Herophilus) for the sinus described by him; "calamus scriptorius" for the depression in the fourth ventricle of the brain which seemed to resemble the pens then in use at Alexandria; and "duodenum," the *δωδεκαδάκτυλος ἔκφυσις*, twelve-fingered extension, because it was twelve fingers' breadth long in the animals dissected by Herophilus. The terms now in use are, of course, Latin translations of Herophilus's Greek, as reported by Galen.

Greek continued to be the language of medicine under the Roman Empire, and Galen of Pergamum, whom we are perhaps accustomed to think of as a court physician at Rome, writes in Greek. About 200 A. D., however, the disuse of Greek began and with it coincides a period of depression in medical science. It is interesting that it was in the south of Italy, where Greek continued to be

spoken and written for centuries after it fell into general disuse, that you have the isolated phenomenon of Salerno, a flourishing medical school in the eleventh century, protected of course by the measure of security afforded by Norman domination.

Medieval Latin exerted some influence on the language of medicine but, like the Arabic that was to some extent adopted by, for instance, European anatomists, it did not survive in any considerable amount the revival of ancient learning which restored the original nomenclature of the Greek physicians. The word "quinsy" comes from the medieval Latin *quinancia*, or *squinancia*, which is an adaptation of the Greek *κυνάγχη* which in turn has *συνάγχη* as a constant variant reading. *ἀγχη* means constriction, strangulation. The *συν* would be intensive, while the *κυν* would be from *κύων* dog, and make it dog quinsy. I know that dogs may sometimes have a hoarse bark, but whether they are peculiarly liable to sore throat or not is beyond me. There are one or two other Latin words which I shall mention because the derivation seems amusing. "Musculus" means "muscle" in classical Latin, of course; but its original sense is as the diminutive of *mouse*; I suppose from the resemblance that certain contracted muscles would have to that animal. Incidentally the word *μῦς* in Greek from which we get our prefix *myo*, meaning "muscle," has the same two meanings as the corresponding Latin, so that the resemblance, such as it is, must have been noticed very early. Another that occurs to me is the word "shingles" as a synonym for herpes zoster. "Shingles" is a deterioration of the Latin *cingulum*, a belt, and so has the same significance as the zoster in herpes zoster. Herpes zoster is the term used by Pliny in his letters to describe the complaint, zoster being a transliteration of the Greek word for belt and herpes derived from the Greek *ἔρπω*, to creep.

I am reminded at this point of some lectures I once attended by a professor of history who was supposed to be discussing the colonization of America, and he became so involved in the details of the earliest and most hypothetical voyages of discovery that at the end of the course he was still talking about the Norse explorers and indeed left it doubtful whether any of them had actually arrived at their destination. I think that I shall make a forced landing in modern times before it is too late.

In the early nineteenth century word-coining becomes fast and furious to keep up with the advance of modern discovery. Ludwig's "kymograph," Bernard's "glycogen," Schwann's "metabolic" are all good Greek. We have also a set of new "ologies"—histology, cytology, and bacteriology. The last named resorts to Latin for the classification of bacteria into their four chief groups, and it is curious that *βακτήριον* in Greek and *bacillus* in Latin are synonyms, both being diminutives of "rod." The word *ἀναισθησία* is good classical Greek, but far beyond the scope of ancient Greek medicine. I think that the Greek physician must have had a particularly good field

for the exercise of his persuasive powers in surgery. In its modern significance, I believe anesthesia was first made familiar by Oliver Wendell Holmes. I think I may conclude this list of words, whose coinage furnishes landmarks in the history of medicine, with a few that also illustrate the convenience of the Greek prefix for making neat distinctions, *e. g.*, septic, antiseptic, aseptic, prophylactic, anaphylactic. There is nothing like a Greek prefix for combining clearness with brevity. The only thing which I find a little painful is the scientific habit of using adverbs instead of the preposition, which is the rule in classical Greek, *e. g.*, exotoxin and endotoxin, *ἐξω* and *ἐνδω* being adverbs never used in composition with a noun in classical Greek. They are accepted as prefixes by the English dictionary, of course, but the English dictionary is very generous in its concessions to science.

I feel sure that you will be disappointed if I do not make a few strictures upon the philological precision of medical terminology. I have not found the medical dictionary the sort of book which can be read very continuously, and I have been content to open it at random, as people used to open the Bible trusting to heaven for guidance. I have put my finger on a perfectly good "howler," the use of which is established, the word "ptomaine." It should be ptomatine, of course; but the original investigator of these toxins, an Italian, was apparently acquainted only with the nominative case of the Greek neuter noun, *πτῶμα*, a corpse; and he was unaware that the stem had a *t* in it. The English dictionary also bewails the barbaric pronunciation *ptomaine*, but says that the usage is too well established for an attempt to be made to change it. Cocaine for cocaine is an instance of the same barbaric false diphthong, but here there is no question of a missing consonant. The mistake about the missing consonant in Greek neuters seems to be a ready pitfall for the unwary, *e. g.*, the medical dictionary gives both dermatitis and dermatitis, the latter of course being correct, and the form in general use. I am not always sure that I can take the duplications of the dictionary as a basis for making a criticism. For instance, I am sure that you all say bacterioid rather than bacteroid, but the wrong form is in Gould's dictionary⁴ as well as the correct one. A nice example of a false quantity confirmed by usage is angina pectoris. In classical Latin the penultimate *i* is short.

Next we may pass to a consideration of hybrids. Strictly speaking, a hybrid is a word formed from a stem belonging to one language by applying to it a suffix or prefix belonging to another. One has to be rather careful here because the English dictionary has apparently decided that it is necessary to allow science some extra leeway in word formation, and while it censures "amoral" because it uses the Greek negative prefix *a* with a Latin stem *mos*, it regretfully allows "asexual" as against "nonsexual," because it is a biological term and has some currency. It recommends, however, that "asexual" shall not be treated as a precedent for future

word-making. Nevertheless I notice in the medical dictionary "avitaminosis," "avirulent," and "avenous," all on one page and all Latin stems with the Greek negative prefix *a*. As I have already pointed out, I have not made a statistical study of hybrids. I have been content to look in likely places and ordinarily I have not been disappointed. Take the Greek prefixes *homo* and *hetero*. You find not only "heteroinfection," but what is less excusable, "homolateral," when you have available the pure Latin "ipsolateral" with its opposite "contralateral." You get into similar difficulties with the suffix *ectomy*, Greek for "cutting out." I suppose the purists say "prophysectomy," but "appendectomy" is also in the dictionary and is Latin and Greek, and I believe that the general term is "appendectomy," which looks like a case of an unnecessary surgical operation upon the word itself. It is an excision to secure a pronounceable word similar to that which gives you "pacifist" for "pacificist." In other words, science is not the only offender.

A word which is not so much a hybrid as an abortion, if indeed it is ever used—is in the dictionary—is "suggestotherapist." *Suggesto* is neither a Latin nor an English prefix as it stands.

Another point which I have heard raised, but about which I feel that I can be more liberal, is the matter of the preservation of diphthongs. It is said that you must spell orthopaedic with an *æ*, lest, if you spell it with an *e*, the unwary should suppose that it has something to do with straight feet. But it seems to me that, as the word already illustrates, the transliteration of the Greek *αι* to the Latin *e*, there is no reason why the Latin *e* should not be Anglicized to *e*, particularly as you have the perfectly sound non-scientific precedent "pedagogue," which has not been spelt with a diphthong for a very long time. The same is true of the Greek diphthong *οι*, which is *æ* in Latin, and may be *e* in English, as in one of the alternative spellings of myxedema from *οιδημα*, swelling. A spelling which I have seen in medical books and for which I see no justification, however, is "aneurism" for "aneurysm." The *y* is the usual Latin and English for the Greek *υ* in *ανευρυσμα*, and the spelling with *i* seems to be illiterate and a confusion with the English suffix *ism*.

I shall not attempt to deal with duplication of terms, but I think that everyone will agree that the medical dictionary is badly overloaded. I can make a similar point with regard to duplication of prefixes. *Toxo*, *toxi*, and *toxico* are synonyms and exist side by side in toxiferous, toxophore, and toxicology. The derivation of the term "toxin" is from *τοξικὸν φάρμακον*, which means "arrow poison," *τοξικὸν* being the adjective from *τόξον* "bow," of which the plural *τόξα* is used for "bow and arrows." The idea of "poison" is in the *φάρμακον*.

Again, I shall not discuss the esthetics of medical terminology. I have left at home a formidable list of polysyllables ranging historically from adenochirapsology, which seems to be a relic of the days of touching for the king's evil to

the contemporary papilloadenocarcinoma or polioencephalomyelitis. The only thing I am sure of is that you are in a position to be much more sensitive than I am to the dire needs of expression which doubtless gave rise to these overwhelming compounds.

If medical terminology is systematic, I at least have not succeeded in discovering the thread that guides you through the maze. But it seems to be agreed that a technical terminology is necessary for precision in a science and, further, Greek has always been admitted to be an unsurpassed instrument of linguistic precision. It is obvious, too, that a common linguistic source for scientific terms is an advantage since a new term can appear simultaneously and with negligible variations in the literature of this continent and of the different countries of Europe. In any case the effect of jargon which is produced upon an outsider by technical diagnosis is most impressive. I select a brief one from a recent article in *Brain*, that of a "man in whom there was a circumscribed angioma arteriole racemosum of the left occipital visual cortex which had produced an incomplete right homonymous hemianopsia. Associated with the tumor was a well-marked auscultatory bruit." We have here a nice admixture of Greek with Latin, and I suppose that the "bruit" acknowledges the nationality of early experimenters with the stethoscope.

It occurs to me that there is a contrast to be made between the nomenclatures of philosophy and medicine. Philosophy has at least as much right as medicine to lay claim to an original vocabulary of Greek, but modern philosophers make no attempt to express themselves in a classically derived terminology. I do not quite know where the palm for unintelligibility should be awarded, but shall we say, that it is important for physicians to be intelligible to one another and unimportant whether they are unintelligible to the world at large, since medicine is an affair of experts. On the other hand, philosophers never hope to be intelligible to one another, particularly if they belong to unsympathetic schools, while they never cease to hope vainly that they will be intelligible to the world. I am inclined to think that there may be something in the idea of jargon after all, and it is not without significance that the etymology of the word "physician," is to be sought not in the Greek *ιατρός*, healer, but in *φυσικός*, which at first meant "naturalist," it is true, but as time went on acquired the connotation "sorcerer."

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REFERENCES

1. Euripides: *Trachiniae*. 685 pages. Τὸ φάρμακον τοῦτ' ἀποθὼν ἀκτινὸς τ' ἀεὶ θεομῆς ἀδίκτων ἐν μυχοῖς σῶζειν ἐμὲ
2. Aristophanes: *Frogs*, 198-99.
3. *στέθρον*, breast; *κλεις*, key, hook, clavicle; *μαστοειδὴς μαστὸς* breast, nipple, *ειδὸς*, form, likeness.
4. There are a number of inaccurate derivations given in this dictionary, *e. g.*, *agrypnia* is given as "ἀ primitive; ὕπνος sleep"; it is from ὕπνος, sleep, and ἀγρόω, hunt, seek after.

CLINICAL NOTES AND CASE REPORTS

VAGITUS UTERINUS

REPORT OF CASE

By LINDSAY PETERS, M.D.
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ALTHOUGH crying of the child in the uterus was observed and noted in medical writings centuries ago, its occurrence is so infrequent that obstetricians of extensive experience, even in recent years, have doubted its possibility.

The *Quarterly Cumulative Index* for the ten-year period, from 1919 to 1928 inclusive, reports thirteen cases.

The following case is the first that I have encountered in a fairly large obstetrical experience covering thirty-two years:

REPORT OF CASE

A primipara, thirty-three years old, had nothing of especial interest in her past history. Last menstruation, June 29, 1928. The pregnancy was entirely free from complications. Labor having begun about 5 p. m., April 5, 1929, it ran a tedious course for more than twenty-six hours, and was terminated by forceps. Episiotomy was necessary before the hand could be introduced into the vagina, and it was then first discovered that the occiput lay in the hollow of the sacrum instead of in an anterior position, as previously supposed. The head was manually rotated to a transverse position and, during the introduction of the first blade of the forceps, air was heard to enter the uterus with a sound of suction. Almost immediately afterward the child emitted a series of loud cries which were recognized and commented upon by the three assisting nurses, without any suggestion on my part. The first forceps seizure was a faulty one, so that the blades were removed and reapplied. Moreover the pelvic outlet was narrow (diameter between the ischia nine centimeters). Considerable difficulty and delay in the extraction were encountered, so that there was a lapse of twenty minutes from the time that the intra-uterine crying was heard until the child, a female weighing seven pounds and three ounces, was delivered, showing asphyxia pallida. Feeble gasps were made by the infant at long intervals. Keeping the baby wrapped and near an electric heater to conserve its body heat, gentle compression of the chest walls and slow, rhythmic tractions on the tongue were continued for at least half an hour before regular respiration began and the skin took on a pink color. Thereafter there were no convulsions, twitchings, vomiting, or other signs of brain injury, and the child nursed well, gained steadily in weight after the second day, and regained its birth weight by the tenth day. The mother had a normal puerperium and was discharged on the tenth day with a healed perineum.

In all reliable reports of vagitus uterinus the crying has followed some intravaginal manipulation—either application of forceps, version or vaginal exploration—but what produces the negative pressure which causes air to be sucked into the uterus has not been satisfactorily explained. May it not be that, following a contraction, relaxation of the uterine walls causes a negative pressure in the uterine cavity and the coincident introduction of the hand into the vagina permits an inrush of air? Of course, it cannot occur without previous rupture of the membranes.

In many cases long intervals—half an hour or even up to three hours—have elapsed between the

crying of the child *in utero* and its delivery in good condition, without asphyxia. On this account some have suggested the advisability of injecting air into the uterus in cases of threatened asphyxia, when prompt delivery cannot be made. Freed¹ cites a case in which "after an unsuccessful attempt at forceps delivery in the home, where repeated intra-uterine crying was heard, the patient was taken to a hospital and a live baby delivered by cesarean section."

Theoretically, intra-uterine crying would entail the danger of drowning in the amniotic fluid, but in practice apparently this has rarely, if ever, occurred.

The fetal mortality following vagitus uterinus is small, and in practically all cases is attributable to mechanical injury to the child in the efforts of delivery.

The phenomenon is of interest from a medico-legal standpoint, because it proves that, under certain conditions, a child may be born dead, with lungs inflated.

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REFERENCE

1. Freed, Frederick: *Am. J. Obst. and Gynec.*, 1927, Vol. xiv, p. 87.

COCCIDIOIDAL GRANULOMA*

TREATMENT WITH THYMOL
REPORT OF CASE

By A. B. STOCKTON, M.D.
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THE following case of coccidioidal granuloma is deemed worthy of report because of the attempted treatment with thymol which appeared indicated in view of its reported antiseptic efficiency against fungi and yeasts. The use of the long-continued and large dosage of thymol without toxic symptoms was striking, and the quantitative excretion of the drug in the urine differed from that reported in the literature. These data may add to the general knowledge of the drug's action, and the negative results of treatment will not only emphasize the great difficulties involved in the therapy of this disease, but may also assist in the search for more effective remedies.

The trial of thymol in coccidioidal granuloma was suggested by the recent success reported by Myers and Thienes,¹ and Myers² in its employment in the treatment of actinomycosis.

REPORT OF CASE

The patient, an American farmer of fifty, from the San Joaquin Valley, was referred to the Stanford University clinics by Dr. Ehler Eiskamp of Watsonville, California, because of edema and multiple granulomatous lesions of the left foot and leg.

During employment in a sawmill thirty years ago the dorsum of the left foot had been pierced by a broken tooth from a circular saw. The wound healed promptly, but five years later a pustule developed over the site of the old scar; this pustule contained a small amount of yellow pus. During the subsequent sixteen years the pustule continued to recur every few weeks, but gave so little trouble that the patient

* From the Department of Medicine, Stanford University School of Medicine, San Francisco.

did not consider it necessary to seek medical advice. In 1925, or twenty-six years after the injury, instead of disappearing the pustule persisted, and the surrounding skin became red and tender. A pink, vascular, fungating growth surmounted the site of the pustule, and became encrusted with a friable black scab, which on removal left a bleeding surface. During the four months before entry into the hospital the patient had been prevented from working because of the swelling, soreness, and continuous burning pain in the left leg and foot.

The patient's past history was negative except that on two different occasions, eight years previously, he had had attacks of hemoptysis, and "coughed up a pint or more of blood." He also stated that he was subject to rather frequent colds, accompanied by cough.

On examination the patient did not appear particularly ill. The right side of the thorax failed to move as well as the left, and over the entire right side there was impaired resonance and distant breath sounds. Asthmatic râles were audible over both lung apices. The inguinal glands showed a moderate bilateral adenopathy. The left leg below the knee presented a red and inflamed appearance, and there was definite pitting edema. Over the dorsum and lateral side of the left foot, and between the toes lay extensive areas of irregular fungating tissue covered with black crusts. Pressure upon the crusts caused a creamy yellow pus to exude.

Laboratory examination disclosed a normal blood and urine. Repeated examinations and cultures of the sputum failed to show the oidium. X-ray examination of the involved foot and ankle revealed only soft-tissue swelling without bone involvement. A chest plate showed slight pleural thickening at both apices. The right side of the diaphragm was adherent to the chest wall at the costophrenic angle, and the mesial portion of the right diaphragm, remaining high on inspiration, suggested the presence of a cyst or tumor in the liver. Smears of the pus from the lesions on the foot showed a few spherules of the *Oidium coccidioides*. Cultures of the pus on plain agar, after a period of five days' incubation, produced a heavy growth of the typical moldlike organism.

Amputation of the affected leg was deemed advisable, but the patient refused surgery.

Treatment with Thymol.—The thymol was given in gelatin capsules. The administration was begun with 0.13 gram (2 grains), and the dose was increased each day for five days until it reached 2 grams (31 grains) daily. The latter dose was maintained during the next seven days. On the eighth day the dose was increased to 2.5 grams (38 grains), but because of slight nausea and pyrosis it was reduced to 1.5 grams (23 grains) on the ninth day. For the subsequent two days the two-gram dose was resumed, without the appearance of further symptoms. A total dose of 25.13 grams (387 grains) was administered in seventeen days. During medication the patient's breath, body, and urine possessed the characteristic odor of thymol, the odor of the urine being the strongest.

At the end of seventeen days on thymol there was neither subjective nor objective improvement in the patient's condition. Local application of thymol (5 per cent strength in alcohol) to the lesions produced no change whatever in their appearance, but caused the patient much burning pain in the extremity.*

Excretion of Thymol.—Using the method described by Seidell,⁴ daily estimations of the thymol content of the urine were made. Different known amounts of thymol added to urine, and estimated by this method, were found to agree within 2 per cent, thus giving a satisfactory degree of accuracy for my purpose. The results on excretion are presented in Figure 1.

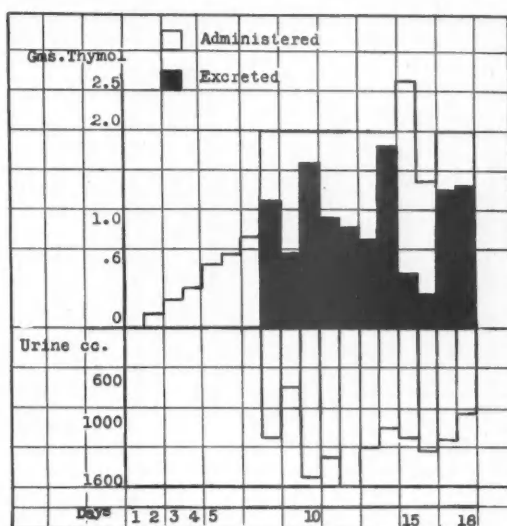


Fig. 1.—Showing results on excretion

COMMENT

The amount of thymol in the patient's urine varied widely from day to day despite the fairly uniform administration of the drug. This illustrates the irregularity in the absorption of thymol from the gastro-intestinal tract. The daily excretion varied from 0.35 grams to 1.8 grams, or from about 17 to 92 per cent of the daily dose administered, the average daily excretion being about 55 per cent. The total amount excreted during the seventeen days of medication was 12.33 grams, but the excretion was not estimated during the first six days, when the patient received a total of 3.13 grams. Therefore at least 56 per cent of the thymol was accounted for in the urine. It is possible that some thymol was excreted in the sweat and feces, but these excreta were not studied.

The average daily excretion, 55 per cent, was considerably higher than that reported by Seidell, who found that 31 to 46 per cent of the oral dose was excreted in the urine, and that about 50 to 70 per cent was destroyed or fixed in the body.

A search through the literature did not reveal a similar long-continued dosage of thymol as in the case here reported. In this case the dose of thymol exceeded 25 grams during seventeen days. The dosage of thymol recommended in the treatment of hookworm is 2.6 grams in two divided doses, followed by a saline purgative, and the drug is not repeated for seven to ten days. Barnes,⁵ who summarizes the use of thymol in eighty-two thousand cases of hookworm infestation, reports single doses of the drug as high as 4 grams (62 grains). In two instances death from thymol during routine hookworm therapy occurred. In spite of the continued administration of thymol in the case here reported no toxic symptoms other than pyrosis were observed.

Careful daily examination of the urine failed to show any signs of renal irritation, as indicated by the absence of casts or erythrocytes. There

* Following the treatment with thymol, the patient received ten subcutaneous injections of a preparation of colloidal copper, described by Jacobson,³ under the direction of Dr. H. E. Alderson of the dermatological clinic. No improvement was observed, and at the present time, six months after the treatments, the patient's skin lesions and his general condition are reported to be essentially the same as before therapy began.

were no remarkable fluctuations in blood pressure, pulse, respiration, or temperature and, except for a fleeting pyrosis on two occasions, the patient stated that he felt perfectly comfortable. No depression of the heart⁶ was observed.

THYMOL ON THE OIDIUM IN VITRO

In the culture of *Coccidioides immitis* no special media are required. A luxuriant growth appears on plain agar after five to seven days' incubation at 37 C. Bump⁷ describes the cultural characteristics of the organism, and these need not be repeated here.

The effect of different dilutions of thymol was tried upon *Coccidioides immitis* in vitro. Plain agar cultures of the organism were exposed to dilutions of thymol in water ranging from 0.02 to 0.2 per cent for periods of from one-half to four hours. Subcultures were then made from the original tubes. No organisms which had been exposed to thymol dilutions exceeding 0.05 per cent grew in subculture, whereas heavy growths developed in all control tubes.

Thymol, therefore, appears to act effectively as an antiseptic against the organism in vitro, but the effective concentration could not occur in the body tissues during life without toxicity. A concentration of 0.05 per cent would be the equivalent of 30 grams (about one ounce) in the tissues of a 60 kilo (120-pound) man, and this concentration must inevitably prove fatal. Assuming complete absorption of the highest dose administered to this patient (2.5 grams), the tissue concentration of thymol would have been approximately 0.004 per cent, which is less than one-twenty-fifth of that actually required. Since not all the thymol administered was absorbed, the tissue concentration must have been much less than 0.004 per cent. This is at least one reason why the thymol did not prove effective.

Another factor entering into the treatment of the disease is the penetration of the capsule surrounding the organism in human or animal tissue. Judging from the failure of thymol applied locally to improve the appearance of the lesions, even higher concentrations are unable to penetrate the capsule in spite of the lipoidal solubility of the drug. In vitro the capsule is absent, and the thymol does not meet with this obstacle. Large doses of iodid might assist in the breaking down of the capsule in vivo, and this drug should be tried in conjunction with thymol.

Unfortunately no opportunity offered itself for trying intravenous antimony and potassium tartrate as recommended by Guy⁸ and by Tomlinson.⁹

PORTAL OF ENTRY OF THE INFECTION

Although the onset of the disease in this patient could not be definitely established, the infection apparently was one of long standing. There had been a lesion of the left foot for thirty years, and eight years previous to the hospital entry there was a history of chronic cough and pulmonary hemorrhage. Four years before the present time a striking change in the character and appearance of the lesions occurred. It is, therefore, impossible to conclude whether the organism found its

portal of entry through the foot, or whether it was primarily a pulmonary infection. Several authorities^{10,11} are inclined to the belief that the infection is always primarily pulmonary, and that the peripheral lesions are metastatic.

SUMMARY

1. A patient showing granulomata of the leg, and possible visceral lesions due to *Coccidioides immitis*, failed to respond to treatment with large doses of thymol. Local treatment of the lesions with thymol in 5 per cent strength was also ineffective, although the organisms in vitro were killed by concentrations exceeding 0.05 per cent.

2. A total of 22 grams of thymol was administered over a ten-day period without symptoms of toxicity.

3. The urinary excretion of the thymol varied from 17 to 92 per cent of the daily dose administered; the average daily excretion was 55 per cent. This excretion is greater than has been hitherto reported. The marked fluctuations in the daily excretion suggest considerable irregularity of absorption of thymol from the alimentary tract.

I am indebted to Dr. P. J. Hanzlik of the department of pharmacology for helpful advice and criticism throughout the preparation of this paper.

Stanford University Medical School.

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COMPLETE OBSTRUCTION OF ESOPHAGUS DUE TO BOLUS OF FOOD*

REPORT OF CASE

By RULON S. TILLOTSON, M.D.

Woodland

F. G., age 16, walked into the San Francisco Hospital the morning of June 13, 1929, with the complaint of inability to swallow solid food or liquids since the preceding evening. At that time while eating his evening meal, which included beef stew among other things, his food seemed to stop suddenly on its way down. On continuing to eat he regurgitated each new portion taken. No pain was noted except for a little feeling of discomfort vaguely referred to the substernal region. He retired that night giving the matter little thought. On the following morning, on account of the thirst and hunger which he was unable to relieve, in addition to the fact that he felt

* From the Otolaryngological Department of the San Francisco Hospital, Stanford University service.



Fig. 1.—Bolus of food removed from the esophagus. Impaction of the food mass in the constricted portion of the esophagus had formed a cast of its lumen.

amount of barium mixture and examined under the fluoroscope. The barium was noted to come to a complete stop at the level of Ludwig's angle or second rib anteriorly; none trickled beyond this point toward the stomach. An esophagoscopy was done according to the Jackson technique to investigate the character of the obstruction. A body suggesting the appearance of meat was noted in the line of vision through the esophagoscope after passing beyond the cricopharyngeus muscle down into the thoracic esophagus. Using Tucker's bead forceps the food mass was removed in one piece. Impaction of the food material in the constricted portion of the esophagus had formed a cast of its lumen, as shown in Figure 1. The food bolus appeared to consist principally of meat, probably some of the beef stew eaten the preceding eve-

ning. Shortly following the esophagoscopy he was allowed to drink a glass of milk, which he did without difficulty and with considerable satisfaction. Figure 2 was taken the day following the removal of the obstructing food bolus, and shows the site of the cicatricial stenosis where the bolus of food was lodged.

Doctor Chevalier Jackson,¹ in his textbook on bronchoscopy and esophagoscopy, states, among other facts, that the accidental swallowing of lye is the most frequent cause of cicatricial stenosis of the esophagus. The location of these strictures, in the order of frequency, are at the crossing of the left bronchus, in the region of the cricopharyngeus muscle and at the hiatal level.

Blind methods of dilatation are extremely dangerous on account of the possibility of perforating the esophageal wall. Where the stenosis is of such extent as to interfere with the ingestion of the required amounts of liquid, gastrostomy should be done at once and the esophagoscopic treatment should be postponed until the water hunger is relieved. Esophagoscopic bouginage when no gastrostomy has been done has been proved in his hands the safest and most successful method of treatment.

Bouginage through the esophagoscope with gradually increasing sizes of bougies will be carried out at four to seven-day intervals in this case as recommended by Jackson.

Woodland Clinic.

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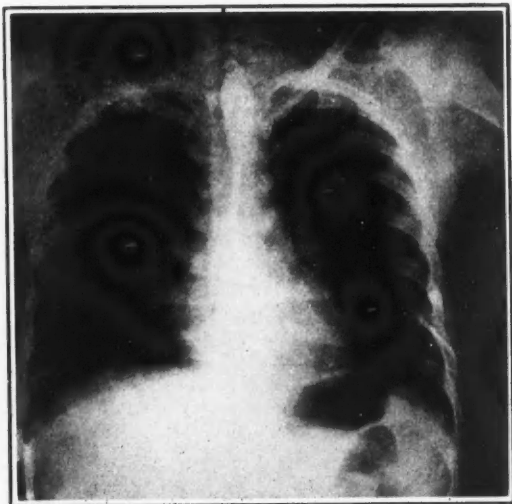


Fig. 2.—Film taken with barium mixture in esophagus, day following the removal of the bolus of food, shows site of stricture where food was lodged. Film by Doctor Haworth.

Ether Supply Watched Closely by Government Chemists.—The recent seizure of ether at Boston and Providence by the Food, Drug, and Insecticide Administration of the United States Department of Agriculture has brought from the department the statement that the sampling of ether on the market is carried on continuously and extensively by inspectors and chemists of the Food, Drug, and Insecticide Administration. Regulatory control of ether to prevent the use of the substandard product is faced with certain difficulties, say officials of the department charged with the enforcement of the Food and Drugs Act. The technique of the manufacture and packaging of ether has not yet been perfected to a point where there is absolute assurance that the ether meeting every requirement at the time of packaging will not upon standing deteriorate to a point where it will not meet the standard of the United States Pharmacopeia. Progress has been made in the development of manufacturing technique, but the problem has not been finally solved, the officials say. This situation necessitates very frequent and comprehensive inspection in order to prevent the consumption of substandard ether.

No one connected with the Department of Agriculture would permit himself to be quoted as saying that ether containing peroxids, which is the usual criterion of deterioration, would endanger the lives of patients on the operating table. It was said that there is a belief in certain quarters of the medical profession that such deteriorated ether is unsafe. However, the regulatory officials say it is not necessary for them to prove that such ether may be harmful to the patient before they can remove it from the market, because the Federal Food and Drugs Act sets up the specifications of the United States Pharmacopeia as its own standards of purity, and ether failing to meet those standards is in violation of the act if shipped within its jurisdiction. The officials state that for several years the utmost care has been maintained to safeguard the country's supply of anesthetic ether and that the seizures recently made in the New England cities are simply a few of the numerous detentions that have been made. Thousands of samples of ether have been tested in connection with this survey during the past year, and testing will be continued.—United States Department of Agriculture.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

PRURITUS OF THE ANUS AND VULVA

From a Proctologist's Viewpoint

M. S. WOOLF, SAN FRANCISCO.—Pruritus is a name only of a symptom, namely, itching. It is analogous to pain and thus might be supposed to have various origins. This symptom may actually be obscured by pain due to a superadded inflammation resulting in cracking of the skin and subsequent infection. Often this is due to scratching and not infrequently to the application of irritating drugs so that an eczematous dermatitis assumes the most important rôle. The condition will undoubtedly be recognized and be wisely treated as such, either by lotions, powders or ointments, whichever are felt suitable. When the patient is worn out by nervousness or sleeplessness, since the itching predominates at night time, hypnotics should not be withheld.

In the proctologic field three distinct groups of pruritus may be recognized. Two of them are based, respectively, on either definite constitutional or local disease. In the former we may include such conditions as diabetes, chronic rheumatic infections, gout, hypertension, and metabolic or endocrine disturbances, such as overweight, exophthalmic goiter, and perhaps senility. In the latter the causes are anal ulcer and fissure, cryptitis, fistula, and other chronic diseases causing external discharge. Even a leakage of petroleum taken as an intestinal lubricant may cause itching. Hemorrhoids, anal polyps, and hypertrophied papillae fall also into this second group since they cause an irritation within the anal canal and may give rise to that vermicular sensation which the patient interprets as worms. Parasites, of course, must be excluded in any investigation. Pruritus originating from pathology in the two groups discussed is amenable to treatment. Its pathology is known. The third group is termed idiopathic since a pruritus exists, but no cause for it can be discovered.

Whatever the origin of the pruritus, three types of skin result. First, that in which there is an unbroken surface which appears normal, or merely leathery and parchment-like. Second, that with a white, soggy, edematous and cracked surface, extensive perianal folds and sentinel piles. The change may have invaded the perineum, scrotum, and adjacent fleshy folds. The third type of skin presents an extensive and acutely inflamed edematous and fissured surface. When an eczema is present it is proper to use the current methods for its relief. All excrescent folds retaining perspired secretion which becomes rancid and irritating are to be clipped away radially from the anal orifice. This procedure will cut many nerve filaments and diminish itching. The skin being again healed, or initially, if it originally showed little or

no pathology, pure phenol may be painted not into, but half an inch around the orifice. The skin will also by this means be rendered anesthetic and will exfoliate. After two or three days of soreness a new and better vascularized epidermis will have taken the place of the old, and certainly the patient will not scratch the part for many days. During healing, the patient should have frequent hot sitz-baths, followed by the application of simple boric ointment. The acute condition of the third type is treated as an acute inflammatory condition by hot baths and emollient fluid applications, such as lead and opium wash, or lime water. Later, after healing, in all cases a most careful hygiene is recommended. Baths, especially after defecation, and a suitable antiseptic powder are prescribed. A good powder is calomel, zinc oxid, and starch in the proportion of one, two, and eight, respectively.

X-rays and ionization are useful adjuncts in the treatment of pruritus. The latter requires a special apparatus, but with it I have had some success. Some proctologists use alcohol and dilute hydrochloric acid to destroy nerve endings beneath the skin, but I have had no reason to use these, as treatment according to the methods mentioned earlier has cured the majority, and relieved most. In the most inveterate and intractable forms a direct cutting of the nerves by undermining the perianal skin more certainly attains its end and is, therefore, preferable.

* * *

From a Gynecologist's Viewpoint

GEORGE JOYCE HALL, SACRAMENTO.—Pruritus vulvae, etiologically, is divided into three large groups—local, constitutional, and nervous. In the first two it is a result of other primary factors; in the third a pathologic condition of the nerve endings. Many years have passed since it has been first so considered, and to my knowledge no better "excuse" has been formulated.

The greater number of cases seen by a gynecologist are due to purely local conditions of the external genitals and genital canal. And most of these really have less itching than burning, or small areas of acute tenderness and pain. So that, as pruritus means an itching condition, it is not proper to call these irritated vulvae with smarting, burning discomfort, cases of pruritus at all. Pruritus is a general term for itching. Its derivation does not mean pain or burning, and as most cases of cervicitis, endocervicitis, vaginitis and other allied conditions cause irritation and possibly pain and but rarely itching, I personally do not approve of classifying the results of these cases as pruritus vulvae.

Pruritus occurring secondary to diabetes, ic-

terus, or other constitutional diseases, or as a result of anal pathology, is not to be considered here.

Any itching that is caused by gonorrheal vulvitis, cervical lacerations, erosions (so called), bartholinitis, endocervicitis, endometritis, cystitis, and urethritis is, of course, relieved by properly treating the causative condition. This is only transitory in character. General cleanliness is a big help. Various mild lotions, unguents and emollients are beneficial, although occasionally there is a need of phenol, cocain and similar local anesthetics, applied externally for a short time.

There are a number of cases in the elderly patients who are beyond the menstruating age and whose genitals are all in the atrophic period who have a pruritus that requires radical measures if relief is obtainable at all.

In the menopausal age or climacterium it has been recognized that actual changes histologically take place, termed vulvitis pruriginosa. There must also be considered the entity known as kraurosis vulvae in which there is an actual atrophy of the corium which later becomes sclerotic. Whitish spots appear and a general atrophy of the genitals and vaginal lining occurs. Vaginitis senilis is often accompanied by a stubborn itching.

These latter types are relieved with difficulty. It is occasionally considered necessary by surgery to sever the nerve endings or nerve supply of the vulvae and sometimes a portion of the vaginal canal. Many sufferers are permanently relieved, although if extensive undermining is done, healing occurs very slowly and, of course, with increased and consequent contraction.

* * *

From a Dermatologist's Viewpoint

ERNEST DWIGHT CHIPMAN, SAN FRANCISCO. Pruritus, in its strict sense, is only a symptom. Many dermatologic authors, however, employ the name to denote a disease in which primarily there are no lesional changes although various consecutive reactions may occur.

While itching may be present as a symptom in many conditions due to mechanical and chemical irritants as well as to the action of bacteria, fungi, and animal parasites, this discussion will be limited to those cases in which the pruritus has preceded and not followed the visible change in the skin about the anus or vulva.

From the pathologic viewpoint we must regard pruritus as a sensory neurosis. When medical aid is first requested, secondary changes have usually already occurred. These changes in pruritus may vary from the mildest type of simple excoriation to the most severe inflammatory form in which the skin shows a whitish, sodden appearance with deep folds which retain a foul-smelling secretion, together with fissures, crusts, induration, and pigmentation.

In pruritus vulvae the lesions also vary in severity from the superficial results of scratch marks to marked red, tumid and crusted re-

actions. The mucocutaneous tissues may exhibit extreme degrees of swelling.

There are three indications to be met: first, to relieve the symptoms; second, to restore the damaged tissues to a normal state; and third, while this is in process, to ascertain if possible the cause.

For the relief of the itching countless topical remedies have been suggested, proof sufficient that there is no specific. Perhaps the most generally useful is phenol. Bronson recommended the following: R—Phenolis 8, liq. potassae 4, ol. lini 30. The use of 25 per cent phenol seems heroic, but its action is so tempered by the oily vehicle that it remains short of being caustic. Moreover, used on limited areas for limited times, it is not toxic. Having prescribed this many times, I can recommend it as more often helpful than any other combination I have tried.

Various preparations of chloral, camphor, thymol, hydrocyanic acid, salicylic acid, paraesthesia, and tar are all occasionally of service. Internally aspirin will sometimes give relief.

The x-ray, while often wonderfully effective, should be used with great caution. The subject of any pruritus is prone to travel from office to office and may easily understate the amount of radiotherapy previously used, with results which might react unfavorably upon both patient and operator.

The local treatment of the tissues involved varies with the reaction. In all cases the removal of retained secretions and debris from the folds of the skin is of capital importance. This is accomplished by the use of such preparations as oronite or carbon tetrachlorid. Occasionally areas of thickening occur which appear almost verrucous. For these such keratolytics as salicylic acid or resorcin should be used, the strength and duration of application to be regulated by the degree of thickening. Fissures call for the local application of a 10 per cent solution of silver nitrate.

For areas of slight infiltration various tar preparations are often valuable. In general, 5 per cent pix liquida in zinc ointment is efficacious. Sometimes pure crude coal tar will achieve striking results. The choice of the remedy, as well as the decision as to its strength, calls for a sure therapeutic touch. In doubtful cases one seldom errs in using, until the individual tolerance is learned, such a mild formula as the tar in zinc ointment just mentioned.

It is in the search for a cause that the active coöperation of the various specialists should be invoked. The organic changes of the menopause, pregnancy, constipation, cryptitis, hemorrhoids, fissures, vesical calculi, malaria, carcinoma, tuberculosis, prostatitis, cystitis, diabetes, and nephritis are a few possible etiologic factors the grouping of which suggests plainly the need for frequent consultations between the various specialists in the successful treatment of this condition.

From a Neurologist's Viewpoint

ROBERT L. RICHARDS, SAN FRANCISCO.—Since pruritus manifests itself as a sensory nerve change, belonging in the group of paresthesias rather than hypo- or hyperesthesias, one might class pruritus superficially as a nervous disease. Indeed, success in treatment depends entirely upon how much you can relieve the sensory nerve from irritation and how much you can relieve the nerves of hypersensitivity. Even in senile and other atrophic changes involving the anus or vulvae and associated with itching there is no definite nerve distribution or gross pathology discoverable by the usual methods of investigation. Nor is there any evident change in any spinal cord center. Consequently one is thrown back upon cell changes resulting from toxic irritations, or varying amounts of blood supply. The usual classifications of pruritus ani et vulvae also suggest this classification, viz.:

1. Toxic or metabolic pruritus including diabetes, gout, uremia, jaundice, arteriosclerosis, intestinal stasis, and various foods, etc.
2. Dermatoxic pruritus including eczematous troubles, local irritant dermatitis, etc.
3. Parasitic, including itch mites, lice, fungi, etc.
4. Neurotic, meaning what remains when you have no evident general or local cause.

Quite naïvely, too, writers state that when you encounter this persistent disabling malady you really find little other than the result of scratching locally as far as 2 and 3 are concerned. Certainly the general toxic conditions under 1 do occur, in the majority of instances, without any of these pruritic manifestations. Hence, one is forced to admit in this problem, the importance of the individual nervous system both generally as to personality, and locally as to its sensitivity of nerves to certain irritants of both local and general origin. The frequent lack of success or delay in the medical treatment of pruritus ani et vulvae is easily understood when one considers the wide implications of the subject and the tendency to evade too much effort. Anesthetic and destructive agents will frequently relieve temporarily the agony of itching in such positively erogenous areas. This has led to even the subcutaneous severing of nerve endings by operative interference, but the success has been temporary. Long continued, painstaking detailed care has given much better results. Besides special measures at times such as described by the writers in this symposium it means that daily detailed care as to cleanliness, kind of toilet, clothing, and frequency of attention each day is necessary. In fact, there is no dramatic operative method in managing pruritus.

Besides all this, however, there is the need of caring for the personality disturbances rarely absent in these neurotic itchers. Before they itched, they jumped at and suffered from noises and sensations. Before they itched they showed undue fatigue, insomnia, and nervous heart action. With the itching established they will

rarely, or only accidentally secure permanent relief unless these personality problems are also relieved. It is especially neurasthenic fatigued neurotics that manifest such a host of paresthesias and remarkable sensations both on the outside and the inside of the body. Cardiologists estimate their nervous heart cases as about 80 per cent of their clientele and these patients can describe heart sensations never dreamed of in any medical writing. "Tingling," "pricking," "formicating," "pressure," "squeezing," "banding," "quivering," "trembling," "gripping," "indescrivable" are some of the terms used besides "itching," in describing these sensations both on the outside and the inside of the body. I have seen these cases drift from one coast to the other through the hands of good specialists and secure relief when the neurosis side was finally actually relieved. Treatment of these people requires not only rest, by relieving them of every burden that they may march more easily, but also re-educational measures, by individualization, and changing of the action pattern so that there is reasonable prospect of successful, happy, comfortable personality growth.

The X-Ray Film Hazard.—The fire hazard of x-ray films has long been known. Certain precautions have been specified by fire underwriters, and various municipalities—Minneapolis, for instance—have stringent rules for storage of x-ray films. Some municipalities have had special regulations to cover x-ray film storage and to date have adopted no satisfactory regulations. It is true that, as a fire hazard, x-ray films stored in small quantities may not be so great. There was evidence, however, in the Cleveland Clinic building that the gases evolved produced a hot flame. With their explosive possibilities and the danger of evolving lethal gases, their menace to human life is great. Possibly life insurance companies will have to be depended upon to procure proper action.

The report mentioned proposes two reasonable methods of assuring proper safeguards in the storage of films. One is the compulsory substitution of a type of film which does not possess the dangerous qualities of the nitrocellulose film commonly used. The other is the adoption by states and municipalities of stringent requirements covering storage and handling of the present films. Storage in outside buildings and well removed from other structures such as the method used at the Mayo Clinic is preferable. Where this is not feasible the regulations of the National Board of Fire Underwriters, which require outside vents, automatic sprinkler protection, and so forth, should be carried out.

The Public Health Council of New York State, acting on the recommendation of a special committee appointed by Acting Governor Lehman, has prohibited the sale and distribution of the ordinary nitrocellulose films in the state except in New York City, effective September 1, 1929. Similar action will doubtless be taken in New York City also. This means that in New York the acetate films will replace those now in use.

It has been said that the detail furnished by the acetate films is inferior. They are more expensive, owing to certain difficulties in manufacture. Certain large hospitals in the East, however, have used them exclusively for some time. It is rumored that the acetate films are likely to be made as efficient as the dangerous ones. That being the case the slight additional cost should not prevent their substitution.—*Minnesota Medicine*, August 1, 1929.

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Leaflet Regarding Rules of Publication.—California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

August 17 issue of the *Journal of the American Medical Association*. Mr. Kelly himself by no means seems convinced that these new basic science statutes would bring about an improvement in present medical licensure conditions, unless it perhaps might be in those states which are suffering from the evils of the multiple board system. California, with its medical or nonsectarian, its osteopathic, and its chiropractic boards, is a good example of a state with multiple examining boards.

* * *

California's Multiple Examining Boards.—Each of these California boards, according to the powers conferred upon it by the legislative authorities, lays down its own standards of preliminary and of professional education and training, and determines for itself whether or not the applicants who seek licenses from it possess the proper qualifications for licensure in its group. It is to be remembered, however, as a matter of fact, that no matter how the laws restrict the nature of practice that such written limitations are as a rule disregarded in active practice. The majority of osteopaths and chiropractors probably practice medicine and surgery far beyond the limits outlined in the laws recognizing their groups.

The major item of interest to members of the medical profession is not whether these various cultist boards should exist, for they already do exist; and all their various licentiates have been given legal rights that in a general way cannot now be taken from them by new legislation. Nor is the obligation which the nonsectarian profession here faces primarily one of betterment of the standards of the different cultist boards. For intrusion or interference by the nonsectarian profession with the workings of cultist boards would not only be not welcomed but probably would be much resented by the licentiates of cultist boards. Moreover, if such objection to interference by the nonsectarian profession were carried by the cultist boards to the people for ballot decision, the voters of California (who through initiative acts have given the osteopathic and chiropractic boards their present laws), would almost to a certainty uphold these cultist boards in opposition to their outside interference.

In the opinion of most nonsectarian physicians the recognition of cultist boards—and that comprehends the recognition of different standards of preliminary education and professional qualifications—does not make for the best protection of the public health. Of course it should be self-evident that all practitioners should be made to have the same relative amount of preliminary education and professional training, no matter what their beliefs concerning disease and injury, or what their therapeutic and other practices might be. Nevertheless, with many citizens it is not self-evident, and an attempted clarification to better educate the laity would probably resolve itself into a discussion about as profitless as one on religion, when the opposing sides have no common ground to stand upon.

EDITORIALS

A BASIC SCIENCE LAW—WOULD IT BETTER CONDITIONS IN CALIFORNIA?

Reason for Considering a Basic Science Law. If we affirm that a basic science law for California would serve our public health standards to better advantage, it would be proper for the nonsectarian medical profession of California to prepare a basic science bill that could be presented to the 1931 legislature.

If, however, we believe that a basic science law could be of no special value to the members of the lay public and of the medical profession, then the time necessary to the study and consideration of such a proposed basic science statute might well be given to other matters of nearer and greater importance to the profession.

Because the subject is one of great importance, it is again discussed in this column. Readers who wish to revive their knowledge of basic science laws are referred to articles in this column which appeared in the October 1927 number, page 525, and in subsequent issues.

* * *

Interesting Analysis of Basic Science Laws by H. E. Kelly, Esq.—An interesting and plausible discussion of basic science statutes from the pen of H. E. Kelly, Esq., who has been legal adviser to two state medical boards, was printed in the

Mr. Kelly's Acknowledgment and Appeal.—Mr. Kelly, in his opening paragraph, acknowledges that in many states the cultist groups have been successful in the last thirty years in establishing for themselves a very considerable legal status. In California we might add that it is a firmer legal status in one sense, than that possessed by the medical or nonsectarian board, since the laws governing the medical board can be changed by any biennial legislature, whereas with the osteopathic and chiropractic laws, which were brought into being through the initiative, no legislative authority other than the people of the state themselves can intervene.

Mr. Kelly's closing paragraph has as its sub-head, "Need for Organization in the Medical Profession." In this paragraph he summarizes some of his previous viewpoints and suggests that the profession "must organize to educate the people and inform the legislators" by giving of their funds and influence and using the same to carry on a propaganda that will make our citizens in the different states refuse to establish separate licensing boards for practitioners of cultist medicine, and so on.

Now an appeal like this of Mr. Kelly's looks well in print, but in view of what has already taken place in the legal recognition of cultist practitioners from one end of the country to the other, how can any man who is familiar with practical politics and the psychology of the people in relation thereto seriously contend that real improvement would result from an expenditure of massive funds and educational efforts on the laity, which funds are yet to be collected from physicians, and which, frankly, never could be collected.

* * *

A Criticism of Mr. Kelly's Contentions.—From our viewpoint, if we were to criticize the article by Mr. Kelly it would be on several grounds.

One, that Mr. Kelly gives so much of his effort to pointing out the evils of multiple boards and their varying standards, conditions with which we are all familiar and which we all regret.

Two, Mr. Kelly unduly magnifies the defects in the complexion of basic science boards, the supposedly basic science subjects, and the places such certificates from basic science boards would receive from professional boards like the California Board of Medical Examiners.

Three, Mr. Kelly seems to think that basic science laws in order to be efficient should do away with cults already legalized, and even change the character, make-up and outlook on life of many cultist practitioners. Now a basic science law constitutionally cannot be made to be retroactive in its application if it would deprive a large group of practitioners of vested legal rights which permit them to earn their living by the practice of a certain profession. Again it is not fair to expect a basic science law to make a better or more learned practitioner out of every cultist licentiate any more than it would be fair to expect a law for nonsectarian licentiates to

make a good or more learned man out of every licentiate of the nonsectarian group.

Four, Mr. Kelly seems to think that the real solution of the problem of preventing incompetent persons from receiving licenses as practitioners of the healing art is a responsibility which lies with the nonsectarian practitioners. We are to give money and effort in such ample profusion that a propaganda of such magnitude will be carried on that the lay public everywhere will rise up and give their blessing to the practitioners of nonsectarian medicine; and at the same time refuse to go to cultist practitioners for treatment of any kind. All of which sounds well when it is dressed up in language intended to appeal to emotional or altruistic endeavor, but which from the practical standpoint is analogous to some of the quests which made Don Quixote such a celebrated character.

* * *

What Mr. Kelly Seems to Have Forgotten.—From our viewpoint Mr. Kelly seems to have failed to recognize that under our present form of national and state governments, in regard to the licensure of practitioners of the healing art, that what has been, is; and that some things which are, will in all probability continue to be.

* * *

How Could a Basic Science Law Be of Value to California?—As we see the situation, the major improvement factor which makes a basic science law worthy of consideration by California, as a means of betterment of standards of licensure, does not concern osteopaths, chiropractors or naturopaths who are already legally licensed in California, and who will continue to have legal sanction to practice, no matter what we do or do not do, but with those new cults still in the borning, or today even unthought of, and which cults in good time will come into our midst and demand legal recognition as did their cultist brethren before them.

* * *

The Lesson From a Recent California Cultist Convention.—It may be taken for granted, if conditions of the future obtain as in the past, that such new cults would receive legal sanction. Why not? Who would prevent such recognition? Have our best efforts in the past prevented such legal recognition?

If past performance is a fair standard for judging, each such new cult would in its beginning exploit and make its wares especially attractive to lay persons of minimum education and of small financial resources, but with intense ambitions to take themselves out of the white collar class of vocations. With the passing of time other new "colleges" of each such cult would come into existence to give competition to the originators of the movement, and the "doctors" who had previously graduated would then begin to talk about high and higher standards for their group; until indeed the number of scholastic

working hours—in their catalogues—would appear as great or greater than in the curricula of nonsectarian institutions.

Witness, in this connection, the following excerpt from an item in the *Los Angeles Times* of August 14 last, which item no doubt led many lay readers to think that the cultist group referred to was most alert in working for higher standards. The excerpt reads as follows:*

Dr. Samuel J. Howell of Sacramento last night was elected president of the National Progressive Chiropractors' Association at its convention in the Los Angeles College of Chiropractic. This will be the fourth term as president for Doctor Howell, who is secretary of the California State Board of Chiropractic Examiners. . . . Proposed amendments of the California chiropractic laws was the leading topic at the convention yesterday. The amendments will raise the standard of education required of students and will advance professional requirements in chiropractic schools and colleges by increasing the minimum hours to 3600 upon the passage of the measure, and a further increase to 4000 hours, effective January 1, 1932. Minimum present requirements are 2400 hours. The bill will also introduce electrical and physical therapeutics and additional hours of obstetrics and chemistry as requirements. . . .

In the above excerpt we find an excellent example to which Mr. Kelly can apply his theories. Here we have a state examining board for a cultist group, which has legal sanction through initiative vote of the people of California, the supreme legislative authority of the state. The members of this group in the lay press give notice of their intention to raise their educational requirements. Now what would Mr. Kelly do under these conditions or, being more specific, what would he have the nonsectarian medical profession of California and of other states, do in these premises? If an attempt were made to prevent this cultist group from raising its standards, the nonsectarian profession would bring down upon itself a storm of disapproval from lay citizens, and rightly so. If an attempt were made to divest these practitioners from the right to practice because of lesser standards of education and training, that effort would also fail, and coming at this late day, deservedly so.

* * *

The Real Licensure Problem Is Not With Groups Already Legally Existent.—Let us repeat what has been previously indicated, namely, that in California these cultist groups are legally existing, that the graduates who are now licentiates are constantly striving to raise their standards of preliminary education and training of their groups in much the same manner as in nonsectarian medicine, a half century ago, our own leaders sought to improve our medical school standards. We deal here with an evolutionary process which in a profession like that of the healing art must ever give expression to itself, if the disciples and their beliefs are to be kept from retrogression.

The cultist groups already established are not the crux of the problem. It is the unborn cultist

groups which must be prevented from receiving legal sanction; and for the good and sufficient reason that in this day and generation it is not only an absurdity, but practically a crime to permit persons of deficient preliminary education and of inadequate professional training to receive legal sanction to hold themselves before the public as competent to treat diseases and injuries of human beings.

* * *

A Basic Science Law Would Safeguard the Future of Licensure in California.—For these new cults a basic science law would introduce an element that has not existed in the past. And the strongest element in a basic science law has not to do with the complexion of the basic science examining board, or the nature of the supposedly basic science subjects, but with that provision that demands that each applicant shall present evidence of possessing at least a real four-year high school education.

* * *

Why a Basic High School Education Is of Such Great Importance.—Now why is this four-year high school education so important? The answer is that the first disciples of the first colleges of a new cultist group (which first colleges or institutions are nearly always under the commercialistic influence of their owners and propagandists) are almost always persons of less than a four-year high school education; in fact many may have little more than a reading, writing and arithmetic standard, but with an important additional factor, namely, an intense desire and ambition to be a somebody, as a "doctor," for example.

If these first student disciples did not go to such a new cultist school, and high school graduates are too intelligent and self-respecting to flock in great numbers in the beginning to such a new cult, then the promoters would find their efforts financially unremunerative, and such a cultist group would probably not get a real foothold in the state. On the contrary, let such a new cultist group turn out in short time tens and hundreds of graduates (whether they practice in the beginning with or without legal sanction does not matter), and it will be found that there will be a sufficient number of lay persons who will seek their treatment services. Once that is accomplished, with testimonials from such patients, the group finds little difficulty in fastening itself upon the communities of a commonwealth. In due time the cult is almost sure to receive a certain amount of legal sanction. And once any kind of legal sanction for ever so limited a group of diseases or methods of treatment is given, it is almost impossible to get an American jury that will adequately penalize those graduates who use methods outside their own cult, even though such practice be in contravention of the law.

This picture just presented is the set-up that may be said to have surrounded the advent of the cultist groups which now have legal recognition in California, and some other states. This is what we should have learned from experience. Experience is a teacher worthy of respect.

* The California Board of Medical Examiners column in this and preceding issues contains some interesting items on certain chiropractic colleges which, by comparison with the excerpt here printed, provoke other lines of thought.

A Basic Science Law in California Should Meet With Little Opposition.—If a basic science law were proposed in California it would seem to be a fair assumption that the sectarian schools, which are already legally recognized in California and all of which profess high school (or higher) standards of preliminary education, would have no objection to demanding this same standard for new cultist groups which might later on desire to enter the state.

In relation to nonsectarian medicine the basic science law could be so worded that any professional board could decide for itself to what extent it wished to recognize the basic science certificates. Further, in case a basic science board did not maintain the proper minimum standards, the members of our own California Board of Medical Examiners could so frame their questions that all applicants would be called upon to give answers that would satisfactorily indicate both preliminary and professional education and training.

From all of which it is to be noted that the writer is as firmly convinced as ever of the desirability of a basic science law for California, and believes that all members of the California Medical Association who are interested in medical organization and the protection of medical standards would do well to give considerable study thereto.

FALL TERM OF COUNTY SOCIETIES—SOME QUERIES AND COMMENTS

What Work of the Fall Term Might Comprehend.—The vacation season of 1929 now being of the past, it may be assumed that the county medical societies, which through their union make up the California, Nevada and Utah Medical Associations, have again taken up their work in their respective localities. It may not be out of place at this time in the calendar year for the members of such county societies to take stock, as it were, of some of the matters in which every county unit in organized medicine should be interested. Among such items might be mentioned:

* * *

Scientific Programs.—Are these of such nature to be of general interest to members? Is the arrangement of topics such as to appeal to and be of profit to the members who attend the meetings? Do the papers presented bring to the front the best work and efforts of local colleagues? Does the society receive the stimulation which comes from occasionally inviting colleagues from other cities to make addresses? The secretary of the Association will be glad to give aid in supplying such speakers through the Extension Lecture Service of the California Medical Association.

* * *

Good Fellowship Features of Meetings.—Is the county society alert to the necessity and value of adequate social features at meetings? Was a vacation out-of-door gathering put across during the summer months? If not, will any attempt be made to arrange for one such next summer? Are

informal suppers or lunches made a part of the regular routine meetings? If not, it is possible that such a county society may be missing some of the most valuable of upbuilding organization factors. Doctors of medicine are no different than other human beings. They need occasional relaxation and diversion, and when it is provided, those who participate therein, through better understanding of one another, are able to develop a stronger county medical unit than would be otherwise possible.

* * *

Building Fund for a Home for the County Society.—Every county society might well have a permanent quarters committee. From time to time, in almost every community, conditions exist which make the acquisition of property especially advantageous. If a building fund is in existence, no matter how small, then a permanent quarters committee consisting of members who are active and loyal to organized medicine may at times be in position to accomplish the seemingly impossible. When chapters composed of college lads can build splendid fraternity houses in our colleges and universities, it would seem that medical men of maturity might well be able to solve such problems, to the betterment of their local societies and of organized medicine at large.

* * *

Standing Committees.—Every county society has certain officers and standing and special committees. Are all functioning as they should? How many are figureheads? If figureheads, why is such the case? Is such a deficiency due to improper selection of a chairman or other executives; or is the fault to be found either in lack of interest, or in someone's selfish pride in demanding this, that or the other position for its publicity or salve to the personal ego, with no related sense of duty to fulfill in best possible measure the duties of such office or committee position?

Why would it not be a wise plan for the officers and committeemen of each county society to get together two or more times a year, to sit as a sort of committee of the whole or as a committee on the state of the society, each officer and committee to report on work done or undone to the other officers of the society? Years ago the writer introduced such an innovation into the Los Angeles County Medical Association, and it has continued to be a useful adjunct in maintaining better contacts between the various activities of that society.

* * *

A Local Membership Survey.—No county society can be said to measure up to its greatest possibilities if it does not have a more or less accurate check on all local practitioners of the healing art who hold the degree of doctor of medicine, coupled with information which explains why eligible nonmembers are not working shoulder to shoulder for organized medicine through membership in the county society. In this column, in the August issue, an analysis of mem-

bership figures for the different counties of California was briefly indicated. That article is commended to the consideration of officers of the county societies, since the officers are the members who have special responsibilities in these matters.

* * *

Public Policy and Legislation.—This fall, in California, there will be no civic election turmoil, because the election of state assemblymen and state senators does not come up until the fall of 1930. Nevertheless it would be good political judgment if all county medical societies had one or more members to act as liaison representatives with legislators who will either return to office or later on be up for reelection consideration. The intimacy of such personal contacts may be of great value in the promotion of measures in which organized medicine is naturally interested. Business everywhere maintains such contacts. The public health is of equal importance. The members of the medical profession, through their training and knowledge, have special responsibilities in the conservation of the public health. Alert committees on public policy and legislation can therefore be of much service when they do their work properly.

* * *

The above are a few of the activities which are ever present in county medical societies, and which such organizations, in order to be fully efficient, must not shirk. These items are mentioned here as a sort of score memorandum to make easier a tally by all those who feel they should know somewhat of how these various lines of work are being carried on in their respective county units.

EXAMPLE OF PRESENT-DAY EXPERT MEDICAL TESTIMONY

A Pertinent California Court Case.—As this issue of CALIFORNIA AND WESTERN MEDICINE is being prepared for the press, an automobile accident trial is before one of the courts of Los Angeles, in which testimony of reckless driving and drunkenness, with a charge of murder, are interwoven with testimony and opinions as to the gravity of the shock and injuries received at the time of the accident, and the possible effects which an anesthetic and a hip-joint reduction might have had in the death of one of the victims in the accident.

The prosecution on the one hand and the defense on the other vied with one another in the amount and nature of the testimony submitted by their respective medical experts. In one of the Los Angeles papers of even date with the writing of these comments, it is stated:

The physicians who testified yesterday all based their opinions on the same 1500-word hypothetical question framed by the defense Wednesday and propounded to the defense surgeons; but while all of the defense doctors testified that Rokumoto died from the

anesthetic and not from the automobile injuries, the situation was reversed yesterday.

So now, insofar as the record of the case goes, five doctors have said one thing and five more the exact opposite, with the possibility of a few more to come.

* * *

A Reform Needed in Expert Testimony Procedure.—The above excerpt carries its own suggestive thought to all members of the medical profession who have given any study to medico-legal testimony. It is the presentation of situations such as the one outlined in the above quotation from a daily newspaper, and which, in better or worse form, is an example of what practically appears in newspapers throughout the land that has led leaders of the medical and legal professions to ask a betterment of court procedures in the matter of expert medical testimony. Readers of this journal may recall that in the March 1929 issue, page 165, was printed a paper by Wagner on this subject. An excellent analysis of some of the present-day evils with suggestions for betterment through needed laws, which were presented to the California legislature of 1929, but which unfortunately did not go on to passage, were therein discussed.

* * *

The American Medical Association's Attitude on Expert Medical Testimony.—In last month's issue, page 223, the abstract of the proceedings of the House of Delegates of the recent American Medical Association Portland meeting contained the full resolution on medical expert opinion which was adopted by that body. One paragraph therefrom is here reprinted, because it states in good form the opinion which is held by leaders of the medical profession in the United States on certain phases of this important public health and medico-legal problem.

The paragraph is as follows:

Resolved, That the House of Delegates approves the principle of securing in the case of all capital charges and in the case of as many other criminal charges as the psychiatric facilities of the state will permit an impartial and routine mental examination of the defendant in advance of the trial as a means of obviating the contentious introduction of partisan testimony; and that it approves further the principle of removing as far as possible the question of sanity from the trial itself, reserving the employment of psychiatric data for a post-trial inquiry to determine what treatment is appropriate to the convicted persons. . . ."

It is hoped that the Council and Committee on Public Policy of the California Medical Association will construe this subject to be of sufficient importance to merit study and possible draft of a bill which could be submitted to the California legislature in January 1931. Members of the California Medical Association who are interested in a proper solution of the medico-legal problem are invited to write to the Committee on Public Policy, the membership of which is listed in all issues in the California Medical Association directory.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members. Every member of the California Medical Association is invited to submit discussion suitable for publication in this department. No discussion should be over five hundred words in length.

Medicine

Visual Disturbances Caused by Pituitary Tumors.—Visual disturbances may be due to any one of many local or general causes. In any case the danger lies, not so much in overlooking the symptom, as in superficial investigation, or in failure properly to interpret the findings which have been gained perhaps by a painstaking examination. Pituitary tumors, situated just behind the chiasm and between the diverging optic tracts, are notoriously prone to cause disturbances in vision. Such symptoms are produced probably by direct pressure of the growth on the optic pathway. As Cushing has suggested, dislocation of the internal carotid artery may serve to constrict the optic nerve just distal to the chiasm. Late symptoms may be caused by the inclusion within the tumor of the nerves supplying the extraocular muscles.

Patients suffering with pituitary tumors will usually complain of blurring of vision, failing vision, half vision (hemianopsia) or occasionally double vision.

Blurring of vision is a rather indefinite term often used by the patient when the disturbance is momentary or of slight degree. Effort should be made to ascertain just what he means, for there are many common causes which produce it. Frequently due to errors of refraction or muscle imbalance, it is sometimes due to intracranial tumors, including those of the pituitary body. The symptom itself is by no means characteristic of tumors in this situation unless it be associated with other localizing phenomena.

Progressive failure of vision is more important as a manifestation of pituitary new growth, particularly in the young, where the possibility of a congenital cyst should be considered. In these cases it may be ascribed to syphilis, alcohol, tobacco, uremia, or focal infection, especially that of the ethmoid or sphenoid sinuses. A study of the extent of visual field loss will usually make a positive diagnosis possible. In addition, the ophthalmoscope will usually reveal some degree of primary optic atrophy. Choked disk and secondary atrophy are not often seen.

Pressure on the decussating fibers in the optic chiasm or the medial portions of the tract results commonly in a typical bitemporal hemianopsia. Unless a perimetric examination is done, this may be overlooked, for the patient frequently fails to properly interpret the partial loss of vision. If not asked particularly about it, he may not have noticed that the temporal field is darker or more blurred than the nasal, or that it is entirely blind. If observing, he may have noticed that he tends

to run into things on either side or that only objects directly in front of him can be clearly seen.

A common misconception is that the field loss incident to pituitary tumors is always bitemporal. As a matter of fact, this occurs only when the growth of the tumor is symmetrical. Should it extend more to one side, complete blindness of the homolateral eye may result with more or less of a defect in the temporal field of the other. For instance, it is not uncommon to see an outward deviation of the amaurotic eye in advanced cases of acromegaly with retention of vision in the nasal field of the uninvolved side. In such cases examination of the blind eye may reveal light perception in the nasal field to suggest the original type of field defect. It is well to remember that typical bitemporal hemianopsia is but a stage in the process, and should the patient have a perimetric examination at an earlier period, only a segmental defect may be found. Such segmental or even quadrantal loss in the temporal fields are easily overlooked. Rarely a homonymous hemianopsia may be present when the diagnosis of a pituitary tumor might be confused with that of a temporal or occipital lobe new growth.

Double vision is usually a late symptom and is the result of an inclusion of the third, fourth or sixth nerves in the expanding tumor. By this time other characteristic symptoms and signs have occurred which should suggest the diagnosis.

When visual symptoms bring a patient to the office, the only safety lies in a careful and complete study of the case. When the cause is not obvious, such an examination should include a study of the visual acuity, perimetry and inspection of the eye-grounds with an ophthalmoscope. In the clinics where pituitary tumors are studied, it is of interest to note that many of the patients are referred by oculists who have discovered the true nature of the condition in a routine examination of the eye.

CYRIL B. COURVILLE,
Loma Linda.

Dermatology

Overtreatment of Skin Diseases.—If the medical profession generally, and incidentally, the sick public (dermatologically speaking) would realize that overzealous treatment prolongs disease, dermatologists would not have so much to do. The tendency to use strong measures is shared alike by the profession and the laity. A 3 per cent solution may be recommended for a certain condition. The physician, the patient, or both often assume that three times this strength would be that much more effective. The result may be disastrous. We see this illustrated

in the treatment of impetigo. A 10 per cent ointment of ammoniated mercury is often prescribed when a 3 per cent preparation would suffice. The stronger salve may damage the skin, thus favoring spread of the infection. This is particularly true in the case of children or others with delicate skins.

It is a very common experience to have scabies patients come to us suffering from sulphur dermatitis after having gone the rounds of friends, dispensing druggists, and perhaps physicians, all of whom in turn gave the victim a sulphur preparation. There is now available a "one day" ointment treatment of scabies which is most efficacious if properly carried out in every detail. Only too often this is not done. A large pharmaceutical concern is supplying the trade with a good preparation of this salve. Unfortunately the laity can buy it from the drug store. Although printed instructions are given with each jar, laymen and physicians alike often ignore the same and overtreat the disease. The victims and members of their families often finally come to the dermatologist. Relief is had by stopping treatment and prescribing mild, soothing lotions and baths.

Another common condition that is often overtreated by laymen, physicians and even dermatologists, is mycotic infection (ringworm) of the feet and hands. Even under favorable circumstances this trouble may prove to be very stubborn. It is extremely common, probably every third person harboring the infection to a greater or less extent. Last year I examined eight hundred Stanford students, and Templeton of Oakland inspected many more University of California students. From these observations and experiences in private practice and reports from other institutions, it is apparent that at least 30 per cent of the public have ringworm in some form or other. An enterprising drug firm has placed on the market a salve for indiscriminate use in the treatment of this condition. It is based on a well-known and much used formula, utilized by dermatologists for certain types of fungus infections and only for certain phases of the disease. One has to vary his therapy to suit the individual skin and also to meet changing conditions in the same skin. Physicians, pharmacists and laymen often seem to think that an external application that is good for a dermatosis at one time should be equally good for all cases. Maltreatment based on this false assumption is responsible for many complications and failures. It is for this reason that set formulas should not be used blindly and salves sold over the counter often are disappointing. It is not sufficient to merely apply salves, lotions, etc., but all possible underlying bodily disturbances increasing the sensitiveness and vulnerability of the skin always have to be considered. It should be remembered that the practice of modern dermatology is not based on a simple system of external therapy, but is really the practice of medicine by one having special experience and knowledge of the very numerous skin manifestations of disease.

HARRY E. ALDERSON, San Francisco.

Ophthalmology

Corneal Tattooing.—Tattooing of corneal scars is an art to which too little attention is given. Through tattooing, a patient can often be benefited, not only from a cosmetic, but also from a visual standpoint. If the edge of a scar infringes on the pupillary area, one can help the dazzling caused by the irregular reflection and refraction of light made by the scar if one will tattoo it. Up until 1925 Professor Knapp of Basel showed that scars could be tattooed by removing the epithelium and painting the area with gold chlorid solution. Since that time there has been much progress with this type of tattooing. Pischel of San Francisco presented, before the American Medical Association session in 1929, a review of the literature and his own experience with three patients. In his experiments on rabbits he found that the best color was obtained by using gold or platinum chlorid reduced with hydrazin hydrate. His technic in detail for gold chlorid is:

1. The cornea is anesthetized with cocain without epinephrin.
2. The epithelium is thoroughly removed from the area to be stained. Fluorescin may be used to outline the area in order to be sure of its size, but it must be washed off with saline before applying the gold chlorid.
3. An applicator wet with 2 per cent faintly acid gold chlorid is applied to the denuded area for three to five minutes.
4. Epinephrin or fresh 2 per cent hydrazin hydrate is dropped on the treated area, which immediately turns brown or black.
5. Saline irrigation is used and a bandage is applied.

Sodium bicarbonate may be used to neutralize the strongly acid commercial gold chlorid until it is only faintly acid to litmus, but it must never be made neutral or alkaline or it will not stain. Ellett of Memphis and Gifford of Omaha have also published results of tattooing by this method in this country and seem enthusiastic about their results. As this technic is so simple and yields good results in avascular scars of the cornea, there should be more of an effort made among oculists to relieve patients of disfiguring scars of the cornea.

M. F. WEYMANN, Los Angeles.

Dogs Kept Free From Distemper.—London.—Dog-lovers all over the world will be overjoyed to hear that dogs can now be kept from the terrible scourge of distemper, which has in the past been responsible for such heavy losses.

Dr. G. W. Dunkin and Dr. P. P. Laidlaw, working at Mill Hill for the Medical Research Committee in coöperation with the Distemper Research Council, have carried out an investigation of the virus that causes distemper, and after prolonged research have been able to prepare a special vaccine which protects dogs from distemper. Over one thousand animals have now been inoculated with this vaccine, and the results have been strikingly successful.—*Science Service Correspondence.*

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION

MORTON R. GIBBONS.....President
LYELL C. KINNEY.....President-Elect
EMMA W. POPE.....Secretary

OFFICIAL NOTICE

Notice of Removal.—The California State Medical Association is now located at Four Fifty Sutter Street, Room 2004, San Francisco.

The new offices include a meeting room wherein all executive and council meetings may hereafter be held, two commodious business offices, a work room, and dressing room. The combining of the office of CALIFORNIA AND WESTERN MEDICINE with the state office, and the constantly increasing files of both, rendered the former office inadequate for the present needs of the Association. The new offices were selected with due allowance made for the natural growth and expansion of the state organization.

COMPONENT COUNTY SOCIETIES

ALAMEDA COUNTY

The Alameda County Medical Association held its first meeting after vacation at the new Baby Hospital on Monday, August 19, at 8:15 p. m. Doctor Clifford Sweet presided and invited the members to inspect the hospital at the close of the scientific program. The program consisted of case reports, with exhibitions of cases from the wards of the hospital. The first case shown was a child with a brain tumor presented by Doctor Fletcher and discussed by Doctor Reichert. The tumor is of embryonal cell type and, after partial removal, is being treated with deep x-ray therapy. Doctor Fletcher then presented a case of erythema multiforme, which Doctor Templeton discussed, pointing out that the case was one of those unusual skin conditions in which an original typical textbook type of erythema multiforme changed to a mixed picture in which there are definite evidences of pemphigus. Dr. Hobart Rogers showed films which he had made in the study of congenital heart disease. Dr. Richard Watson reported a case of collapsed lung following surgery. Doctor Templeton discussed the absorption of bismuth compounds. In his experiments the doctor used x-ray in determining the rate of absorption.

On Friday evening, August 23, Dr. Jay Frank Schamberg of Pennsylvania spoke at the Hotel Oakland on the subject, "Recent Advancements in the Treatment of Syphilis." At the close of the lecture Doctor Schamberg answered many questions which were put to him from the audience.

GERTRUDE MOORE, *Secretary.*

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CONTRA COSTA COUNTY

The first fall meeting of the Contra Costa Medical Society was held at Martinez on September 10. The president of the society, Dr. L. St. John Hely, called the meeting to order. Dr. L. V. Dragoo of Richmond and Dr. L. R. Knorr of Concord were voted into the society as new members.

A motion was made and carried that the medical society meet with the dental society on October 28,

and Dr. U. S. Abbott of Richmond was appointed as a representative of the medical association to work out a program of mutual interest for both societies in conjunction with the representative of the dental association.

A feature of intense interest to all who attended was a talk given by Dr. C. Sweet, a pediatrician of Oakland, on the subject of "Nutrition of the Child." He very convincingly stressed the hereditary tendency of the child and also brought out the fact that children are living in constant environment of infection from birth. A very comprehensive explanation of the value of vitamins in a child's diet was given, as well as many other interesting and instructive points.

Doctor Sweet was enthusiastically received and attentively listened to.

The following members were present: L. St. John Hely, L. R. Knorr, John Beard, Hall Vestal, U. S. Abbott, H. L. Carpenter, W. A. Rowell, L. V. Dragoo, E. Merithew, John G. Crafts, G. L. Coates, and S. N. Weil. L. R. Jacobus of Oakland and E. W. O'Brien of Richmond were present also.

Contra Costa doctors are looking forward to the completion of two new hospitals, one in Richmond and the other in Martinez.

S. N. WEIL, *Secretary.*

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FRESNO COUNTY

The first fall meeting of the Fresno County Medical Society was held at Hotel Californian, September 3, at 8 p. m. Thirty members were present.

Dr. Everett Morris of the new Fresno County Tuberculosis Sanitarium at Auberry spoke regarding the regulations concerning admission of patients to the hospital. He said the financial investigation was carried on by the Fresno County Welfare Department. Regarding the cases admitted, Doctor Morris said the advanced cases could not be handled, only the curable cases. Toxic patients or those running a temperature, or those unable to get up and walk to the dining room are not admitted. The women's dining room is one and one-half city blocks from the sleeping quarters. For this reason cases of bone and joint tuberculosis and pulmonary tuberculosis of children are not admitted. Only cases that are able to be ambulatory cases after not more than two weeks rest in bed are admitted.

Dr. George Sciaroni presented a case of a boy, age sixteen years, who on June 10, 1929, had developed a carbuncle on the neck. This was incised. Six days later he complained of severe pain in the right hip and leg. He received no relief from strapping. Within a day his temperature had risen to 106 degrees. The abdomen was distended, symptoms of meningitis were present. A spinal puncture was done and 50 cubic centimeters of thick yellowish pus were withdrawn. Bacteriological examination showed *Staphylococcus aureus* in pure culture. By June 26, since the patient was getting worse, a needle was left in the spinal canal, but there was little or no drainage. On June 27, under ethylene anesthesia, a laminectomy was done in the dorsal region and a rubber drainage tube left in. Following the operation the temperature was 99 to 103 degrees for several days, and there was a gradual improvement in the symptoms. The muscles in the arms and legs, however, showed considerable atrophy. The patient is now well and able to be out. In look-

ing through literature the only similar case that could be found was one described by Emerson in the *Boston Medical and Surgery Journal*, March 24, 1927.

Dr. J. H. Pettis showed a postoperative case of carcinoma of the rectum. The patient was a woman of fifty-two years of age. She complained of loss of weight and passing of bloody stools. Four years ago she began to have pruritus, which was said to be due to hemorrhoids. One year ago she developed constipation, two and one-half months ago bloody and watery stools, as many as fifteen or twenty a day. During the past year or two she has lost twenty pounds. A cecostomy was performed by Doctor Pettis on May 27, 1929. On June 18, under spinal anesthesia, a Coffey operation, as modified by Dudley Smith, was done. On June 27, under caudal and sacral anesthesia, the removal of the lower bowel was done. The patient is apparently enjoying good health now and seems to suffer no discomfort from the colostomy.

JOHN M. FRAWLEY, *Secretary*.

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MENDOCINO COUNTY

The Mendocino County Medical Society met at Willits, September 3, at 8:15 p. m., after inspection of the Howard Memorial Hospital at the invitation of Doctor Babcock. Those present were Doctors Bowman, Babcock, Sisson, Van Allen, Scudder and Wolfe, and Dr. Cleland as guest.

The first business was election of officers and on motion of Doctor Van Allen, duly seconded, the president and secretary-treasurer were reelected for the ensuing year.

Dr. Royal Scudder was chosen delegate and Dr. L. K. Allen as alternate to the annual meeting of the State Medical Association at Del Monte, April 28, 1930.

The report of the treasurer was to the effect that a balance of \$86.64 was on hand.

Dr. Herschel Cleland was nominated a member, beginning January 1, 1930.

The evening was spent in discussion of topics of interest of a local nature, principally the subject of care of indigent county patients, as well as non-indigent tuberculous patients, and how to stimulate interest in medical care of the indigent among the people at large.

The meeting adjourned at 11 p. m. after designating its next meeting place as Talmage in the early part of November 1929.

PAUL J. BOWMAN, *Secretary*.

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SAN DIEGO COUNTY

The Scripps Metabolic Clinic has recently completed a new physiological and chemical laboratory devoted to metabolic research. This laboratory is now under the supervision of Dr. E. M. MacKay, who has recently been added to the staff of the clinic. Doctor MacKay was formerly on the staff of Stanford University. His work will be devoted primarily to the study of renal disease. The laboratory has been erected at an initial cost of \$50,000. One of the features of the building is the medical library containing bound volumes of the current literature on metabolic work.

Doctors Burger, Rees, and Weinberger of the county society have returned from Honolulu, T. H., where they attended the sessions of the Pan-Pacific Surgical Congress, which body decided to meet again three years hence at this lovely "Crossroads of the Pacific." Our representatives speak in the highest praise of the generous entertainment and gracious hospitality accorded them on the Islands. This "hands across the sea" getting together on the part of the representatives of different nations, but of a common profession, is another link in the chain which is slowly binding this old world together in unity and peace.

The county society resumes its scientific sessions after its summer recess Tuesday, September 10, with a dinner meeting at the San Diego Athletic Club, followed by a talk on "Heart Disease" by Edwin Schisler, M. D., of St. Louis, Missouri.

ROBERT POLLOCK.

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SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held at the St. Francis Hospital, Monday evening, September 9, with Doctor Brush in the chair. The minutes of the previous meeting were read and approved.

The scientific program was opened by Dr. Howard Eder, who gave a report of three infant cases: the first, empyema; second, vomiting, with a diagnosis of pyloric stenosis; and third, rickets in a three months' child.

Each of these case reports was followed by the roentgen findings and was discussed by Doctors Ullmann, Sansum, and Brown.

The next paper was on "Thornwald's Disease," by Dr. Henry Profant. The paper consisted of a very brief abstract from a German translation and dealt with the history, anatomy, and pathology of the disease.

The society then went into executive session, and Doctor Brush read all of his correspondence with Supervisor Preisker regarding the appointing of a committee for the investigation of conditions in the Santa Maria Hospital. Discussions by Doctors Jones, Brown, Mellinger, Ullmann, Means, Ryan, Sink, and Baird followed, and it was then moved, seconded and carried, that a copy of the records of the meeting of September 2, held in Santa Maria, be obtained.

No further action was taken in the matter and the meeting adjourned.

WILLIAM H. EATON, *Secretary*.

CHANGES IN MEMBERSHIP

New Members

Alameda County—Joseph L. Eaton, A. L. Gleason, Charles F. Greenwood, D. E. Jeffrey, Malvina E. Moore, Leo P. Musser, Calvert Stein.

Contra Costa County—S. V. Drago, L. R. Knorr.

Kern County—Samuel C. Glassman.

Lassen-Plumas County—William H. Lawler.

Los Angeles County

Harry E. Anderson
Ethel M. Brownberger
Adrian E. Clark
G. D. Conover
Claude L. Davison
Howard D. Eaton
Belle C. Eskridge
Dorothy M. Franklin
J. M. Furstman
H. C. Gernand
Jacques S. Gilbert
Bernard J. Hanley
Lucile G. Hartwig
L. D. Huffman
C. M. Hyland
Voyle James
F. O. Kolda

C. A. Lindquist
J. L. Linn
Ralph W. McKelvy
Jacob Mishkin
Bernard J. Mundall
Edwin B. Plimpton
Robert H. Rathbone
M. A. Schurter
Cyril W. Shier
H. Vern Soper
Roy E. St. Clair
Aubon Earl Stewart
Richard T. Taylor
Hans von Briesen
W. Earl Wallace
A. W. Warnock
Thomas B. Williams

Shirley D. Wimmer

Merced County—LeRoy Hillyer, Thomas Ruffin Pratt.

Orange County—Lyndon E. Taylor.

San Diego County—William V. Horton, Rutherford B. Irones, Hiram D. Newton, Roscoe A. Paull.

San Francisco County—Alexander G. Bartlett, Crawford Bost, Loris E. Curtis, Donald A. Dallas, Francis Paul O'Hara, Bernard J. Rohlfes, Archie D. Sinclair, Leon Mitchell Wilbor.

Ventura County—Robert P. Little.

Transferred Members

James P. Warren, from Lassen-Plumas to San Francisco County.

Numa P. Dunne, from Lassen-Plumas to Alameda County.

Harold A. Morse, from Siskiyou to Alameda County.

Curtis Lane Falk, from San Francisco to Humboldt County.

Paul R. Noetting, from San Joaquin to Tuolumne County.

Deaths

Blair, James C. Died at San Jose, August 28, 1929, age 49 years. Graduate of University of California Medical School, San Francisco, 1905. Licensed in California, 1905. Doctor Blair was a member of the Santa Clara County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Hagen, John Charles Edward. Died at Alhambra, August 10, 1929, age 46 years. Graduate of Bennett Medical College, Chicago, 1906. Licensed in California, 1923. Doctor Hagen was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Jackson, Paul Kingsley. Died at San Luis Obispo, July 12, 1929, age 41 years. Graduate of Cooper Medical College, San Francisco, 1901. Licensed in California, 1901. Doctor Jackson was a member of the San Luis Obispo County Medical Society, the California Medical Association, and the American Medical Association.

Tebbe, William Edward. Died at Susanville, August 17, 1929, age 51 years. Graduate of Cooper Medical College, San Francisco, 1899. Licensed in California, 1899. Doctor Tebbe was a member of the Siskiyou County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

EXTENSION LECTURE PROGRAM***SUBJECT INDEX****Dermatology and Syphilology**

Alderson, Harry E. Templeton, H. J.
Soiland, Albert Way Stuart C.

Eye, Ear, Nose, and Throat

Barkan, Hans

General Medicine

Duncan, Rex Pulford, D. Schuyler
Hollingsworth, M. W. Read, J. Marion
Hurwitz, Samuel H. Rowe, Albert H.
Kellogg, W. H. Shepardson, H. Clare
Lisser, Hans Wolfsohn, Julian M.

(a) Cardiology

Kilgore, Eugene S. Langley, Robert W.
Spiro, Harry

(b) History of Medicine

Codellas, Pan S.

(c) Tropical Medicine

Reed, Alfred C

(d) Tuberculosis

Pierson, Philip H. Rothschild, Max
Voorsanger, William C.

General Surgery

Bell, Leo P. Gilcreest, Edgar L.
Brooks, LeRoy Kilfoy, E. J.
Buerger, Leo Mentzer, Stanley H.
Duncan, Rex Nagel, Gunther W.
Gehrels, Ernst Soiland, Albert
Yoell, Rodney A.

(a) Brain and Spinal Cord Surgery

Towne, E. B.

(b) Plastic Surgery

Barnes, H. O.

Gynecology and Obstetrics

Emge, L. A. Soiland, Albert

Orthopedics

Gottlieb, A.

Radiology

Lawson, John D.

Urology

Cross, W. W. Kreutzmann, Henry A. R.
Ferrier, Paul A. Redewill, Francis S.
Jacobs, Louis Clive Stevens, William E.
Kilfoy, E. J. Wesson, Miley B.

EXTENSION SPEAKERS

Harry E. Alderson, M. D., and Stuart C. Way, M. D.,
320 Medico-Dental Building, 490 Post Street,
San Francisco.

1. The Determination of Malignancy in Tumors of the Skin. (Lantern slides.)

2. Dermatoses Commonly Seen in General Practice. (Lantern slides.)

3. A Skin and Syphilis Clinic will Be Held of Locally Selected Cases (five or six).

H. O. Barnes, M. D., 512 Pacific National Building, Los Angeles.

1. Esthetic Plastic Surgery of the Face. (Lantern slides.)

2. Esthetic Plastic Surgery of the Breast. (Lantern slides.)

Hans Barkan, M. D., 921 Medico-Dental Building, 490 Post Street, San Francisco.

1. Headaches Due to Ocular Causes.

2. Industrial Aspects of Eye Injuries.

3. Modern Methods of Cataract Operations.

Leo P. Bell, M. D., Woodland Clinic, Woodland.

1. Carcinoma of the Large Bowel.

2. Surgical Diseases of the Spleen.

3. Surgical Diseases of the Stomach and Duodenum.

Leroy Brooks, M. D., 731 Medico-Dental Building, 490 Post Street, San Francisco.

1. Ptosis of the Cecum and Ascending Colon, a Congenital Deformity Often Misdiagnosed as Chronic Appendicitis.

2. Practical Preoperative Preparation and Post-operative Treatment in the Light of Recent Advances in Biochemistry.

3. Blood Transfusions—Any Phase of the Subject.

Leo Buerger, M. D., Los Angeles.

(Available after January 1, 1930.)

1. Circulatory Disease of the Extremities.

2. Tuberculosis of the Kidney—Pathology and Diagnosis.

3. Treatment—Surgical and Instrumental of Uretero-renal Calculus.

Pan S. Codellas, M. D., Schroth Building, 240 Stockton Street, San Francisco.

1. Ancient Hindu Medicine.

2. Ancient and Modern Incubation. (Lantern slides and probably a reel of Church Sleep at Tenos, Greece.)

3. Donaria, Past and Present. (Lantern slides.)

W. W. Cross, M. D., 1624 Franklin Street, Oakland.

1. Bacterial Nephritis. (Lantern slides.)

Rex Duncan, M. D., 204 Professional Building, 1052 West Sixth Street, Los Angeles.

1. The Present-Day Treatment of Cancer.

2. Uterine Cancer and Its Treatment.

3. Treatment of Lip Cancer.

* Members of the California Medical Association who wish to cooperate in this lecture work are invited to write to the chairman of the Extension Lecture Committee, Dr. Robert Legge, Univ. of Calif. Infirmary, or to the secretary of the California Association.

- L. A. Emge, M.D.**, 2000 Van Ness Avenue, San Francisco.
1. Legal Sterilization.
 2. Irradiation Treatments in Gynecology.
 3. Diagnosis and Treatment of Sterile Women.
- Paul A. Ferrier, M.D.**, Professional Building, 65 North Madison Avenue, Pasadena.
1. Tumors of the Urinary Tract.
 2. Tuberculosis of the Urinary Tract.
 3. Points of Contact Between Urology and General Practice.
- Ernst Gehrels, M.D.**, 734 Medico-Dental Building, 490 Post Street, San Francisco.
1. The Surgical Management of Gastric and Duodenal Ulcer.
 2. The Choice of Procedure in Resection of the Large Intestine.
 3. Cancer of the Rectum.
- Edgar L. Gilcreest, M.D.**, 315 Fitzhugh Building, 384 Post Street, San Francisco.
1. Surgical Treatment of Aneurysm.
 2. Scientific versus Cult Treatment.
 3. Traction in Treatment of Fractures.
- A. Gottlieb, M.D.**, 1240 Roosevelt Building, 727 West Seventh Street, Los Angeles.
1. Orthopedic and Physical Therapy in Early Poliomyelitis.
 2. Obscure Foot Lesions. (Lantern slides.)
 3. Natural Heliotherapy in Joint Tuberculosis.
- Merrill W. Hollingsworth, M.D.**, 409 First National Bank Building, Santa Ana.
1. An Historical Sketch of Syphilis.
 2. Office Management of the Syphilitic Patient.
- Samuel H. Hurwitz, M.D.**, 1214 Medico-Dental Building, 490 Post Street, San Francisco.
1. What the General Practitioner Should Know About Asthma.
 2. The Nose and Throat Aspects of Asthma and Hay Fever.
 3. Focal Infection in Asthma.
- Louis Clive Jacobs, M.D.**, 450 Sutter Street, San Francisco.
1. The Surgical Prostate.
 2. Tuberculosis of the Kidney.
 3. Lesions in the Posterior Urethra.
- W. H. Kellogg, M.D.**, State Hygienic Laboratory, Berkeley.
1. Concerning Anaphylaxis.
 2. Diphtheria Is Preventable but Not Prevented. Why?
 3. The "Plague" Diseases in Modern Times.
- E. J. Kilfoy, M.D.**, 709 Medical Office Building, 1136 West Sixth Street, Los Angeles.
1. Diagnosis and Treatment of Teratoma of the Testicle.
 2. Carcinoma of the Liver in Childhood.
 3. Malignant Adenoma of the Colon and Treatment.
- Eugene S. Kilgore, M.D.**, 724 Medico-Dental Building, 490 Post Street, San Francisco.
1. Clinical Significance of Precordial Pain.
 2. The Practical Assessment of Cardiac Condition.
- Henry A. R. Kreutzmann, M.D.**, 2000 Van Ness Avenue, San Francisco.
1. The Causes and Treatment of Residual Urine in the Bladder. (Illustrated.)
 2. Diagnosis and Treatment of Cancer of the Prostate. (Illustrated.)
 3. The Etiology and Treatment of Hematuria. (Illustrated.)
- Robert William Langley, M.D.**, 312 Professional Building, 1052 West Sixth Street, Los Angeles.
1. Coronary Artery Disease. (Lantern slides.)
 2. Cardiac Pain.
 3. X-Ray Study of the Heart.
- John D. Lawson, M.D.**, Woodland Clinic, Woodland.
1. Cholecystography and Its Diagnostic Value.
 2. Radiographic Evidence of Sinus Disease.
 3. Roentgen Therapy in Leukemia.
- Hans Lissner, M.D.**, 240 Fitzhugh Building, 384 Post Street, San Francisco.
1. Recent Endocrinology. (Lantern slides.)
 2. The Pituitary Disease, Acromegaly, and Its Effect on Other Ductless Glands. (Lantern slides.)
 3. Goiter and Myxedema. (Lantern slides.)
- Stanley H. Mentzer, M.D.**, 450, Sutter Street, San Francisco.
1. Treatment of Acute Cholecystitis.
 2. Indications for Cholecystectomy.
 3. Etiology of Cholesterosis of Gall Bladder.
- Gunther W. Nagel, M.D.**, 2000 Van Ness Avenue, San Francisco.
1. Excision of Duodenal and Gastric Ulcer.
 2. Duodenitis.
 3. The Diagnosis and Treatment of Esophageal Lesions Causing Dysphagia.
- Philip H. Pierson, M.D.**, 811 Medico-Dental Building, 490 Post Street, San Francisco.
1. The Present Status of the Treatment of Pulmonary Tuberculosis Including the Indications for Surgery.
 2. The Use of Tuberculin in the Diagnosis and Treatment of Extrapulmonary, as well as Pulmonary Tuberculosis.
 3. Pulmonary Abscess and Bronchiectasis. Remarks on Its Etiology, Diagnosis and Treatment.
- D. Schuyler Pulford, M.D.**, Woodland Clinic, Woodland.
1. The Ketogenic Diet Treatment of Epilepsy.
 2. Diseases of the Thyroid.
 3. Fresh Tissue Pathology and the Grading of Neoplasms.
- J. Marion Read, M.D.**, 1530 Medico-Dental Building, 490 Post Street, San Francisco.
1. Some Physiologic Aspects of Blood Pressure.
 2. A Summary of Our Present Knowledge of Thyroid Disease.
- Francis H. Redewill, M.D.**, 686 Flood Building, 870 Market Street, San Francisco.
1. Chancroids—Treatment of Two Thousand Cases. (Lantern slides.)
 2. The Colon as Site of Focal Infection in Chronic Genito-Urinary Diseases. (Lantern slides.)
 3. New Technique of Perineal Prostatectomy. (Lantern slides.)
- Alfred C. Reed, M.D.**, 715 Fitzhugh Building, 384 Post Street, San Francisco.
1. Cairo, Baghdad, and the Orient Medically. (Ninety minutes—110 lantern slides.)
 2. Dysentery—For the Practitioner.
 3. Work of the Pacific Institute of Tropical Medicine of the University of California.
- Max Rothschild, M.D.**, 704 Fitzhugh Building, 384 Post Street, San Francisco.
1. The Early Diagnosis of Pulmonary Tuberculosis.
 2. The Diagnosis and Treatment of Tuberculosis of Bronchial Glands in Children. (Lantern slides.)
 3. The Treatment of Tuberculosis with Specific and Nonspecific Remedies. (Lantern slides.)

Albert H. Rowe, M.D., 242 Moss Avenue, Oakland.

1. Food Allergy.
2. Treatment of Bronchial Asthma.
3. Diabetes Mellitus—Its Diagnosis and Control.

H. Clare Shepardson, M.D., 204 Fitzhugh Building, 384 Post Street, San Francisco.

1. Treatment of Diabetic Coma. (Lantern slides.)
2. Diabetic Surgery from a Medical Viewpoint.
3. Arteriosclerosis in the Young Diabetic.

Albert Soiland, M.D., 1407 South Hope Street, Los Angeles.

1. Observations of Uterine Cancer Treated by Radiation and Results During the Past Fifteen Years.
2. Radium and Roentgen Therapy of Uterine Fibromata.
3. Electrocoagulation and Radiation in the Treatment of Skin Malignancies.

Harry Spiro, M.D., 501 Flood Building, 870 Market Street, San Francisco.

1. Consideration of Heart Action in Health and Disease. (Moving pictures of the living animal heart.)
2. Angina Pectoris—Treatment and Diagnosis.
3. Various Cardiac Irregularities—Diagnosis and Treatment.

William E. Stevens, M.D., 602 Flood Building, 870 Market Street, San Francisco.

1. Urology in Women.
2. Diseases of the Urinary Tract During Infancy and Childhood.
3. Urinary Calculi.

H. J. Templeton, M.D., 3115 Webster Street, Oakland.

1. Cutaneous Malignancies—Their Treatment, Especially by Electrothermic Methods. (Lantern slides and demonstrations of modalities used.)
2. Syphilis—Modern Advances in Its Diagnosis and Treatment.
3. Cutaneous Manifestations of Syphilis. (Lantern slides.)

E. B. Towne, M.D., 612 Union Square Building, 350 Post Street, San Francisco.

1. Roentgen Ray in Diagnosis and Localization of Tumors of the Brain. (Lantern slides.)
2. Treatment of Injuries of the Brain and Spinal Cord. (Lantern slides.)
3. Surgery of the Peripheral and Cranial Nerves. (Lantern slides.)

William C. Voorsanger, M.D., 1001 Medico-Dental Building, 490 Post Street, San Francisco.

1. Results of Vaccine Therapy in Treatment of Infectious Bronchitis and Asthma.
2. Modern Treatment of Pulmonary Tuberculosis.
3. Pulmonary Conditions Wrongly Diagnosed as Tuberculosis.

Miley B. Wesson, M.D., 939 Medico-Dental Building, 490 Post Street, San Francisco.

1. Diseases of the Testicle—Differential Diagnosis and Treatment. (Lantern slides.)
2. Confusing Pyelograms. (Lantern slides.)
3. Diseases of the Prostate—Differential Diagnosis and Treatment. (Lantern slides.)

Julian M. Wolfsohn, M.D., 1401 Medico-Dental Building, 490 Post Street, San Francisco.

1. The Pathology and Treatment of Nervous Syphilis.

2. Modern Methods of Diagnosis and Localization of Brain and Spinal Cord Tumors. (Lantern slides.)

3. Epilepsy and Attacks that Simulate Epilepsy.

Rodney A. Yoell, M.D., 317 Physicians Building, 516 Sutter Street, San Francisco.

1. The Newer Physiology of the Biliary Tract in Relation to Surgery. (Lantern slides.)
2. Clinical Concepts of Bile Salt Retention. (Lantern slides.)
3. Technical Procedures in Surgery of Acute Abdomen.

NEVADA STATE MEDICAL ASSOCIATION

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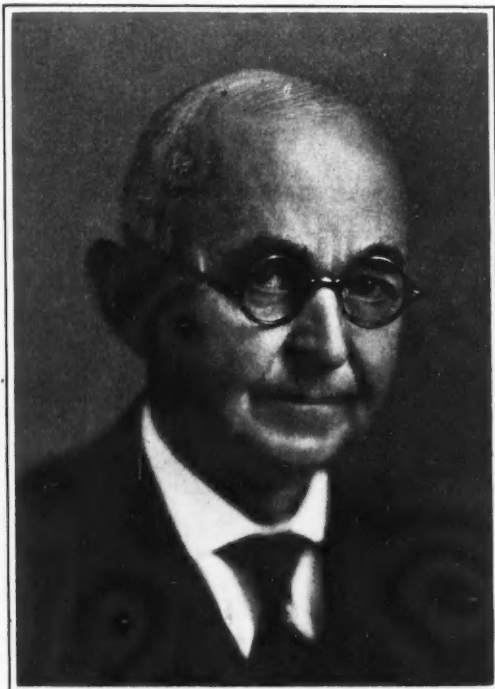
OFFICIAL NOTICE

The Washoe County Medical Society was honored in having the privilege of entertaining on August 23 and 24, in Reno, the Pacific Association of Railway Surgeons on the event of their twenty-seventh annual meeting. The scientific program was held in the mornings, the afternoons being devoted to sightseeing. Trips were arranged for visitors to see Lake Pyramid, Nevada's historic lake, discovered by Kit Carson and General Fremont in 1844. The famous Comstock Lode at Virginia City,, which in its day produced over \$700,000,000 in gold and silver, was visited. Lake Tahoe, 6225 feet high, up in the beautiful Sierras, was the scene of Sunday's visit and barbecue. It is a matter of pleasure to inform our California and other friends that about two-fifths of Lake Tahoe lies in Nevada territory.

The luncheons for the men were held at the Twentieth Century Club, while those for the ladies were held at the beautiful Riverside Hotel and the Mayberry Dude Ranch.

On Friday night an informal banquet for all was held at the Twentieth Century Club. About 160 were present. The Hon. Leslie Summerfield, Washoe County District Attorney, was toastmaster, with Dr. J. LaRue Robinson, president of the Washoe County Medical Society, presiding. At the banquet Dr. J. C. Booth of Lebanon, Oregon, gave a very graphic and eloquent oration on the "Passing of the Old-Time Doctor." Ex-Governor James G. Scrugham gave a most interesting historical résumé of the Lost City of southern Nevada, where the ancient Indian civilization of the Southwest had its origin and dwelt up to such time as climatic changes transformed a habitable country into a desert and compelled the abandonment of the ancient pueblos.

The great social fête was held at the historic Bowers' mansion, twenty miles south of Reno, on Saturday evening. It was a ceremonial wind-up under the efficient barbecue supervision of Captain Gosse of Reno. Captain Gosse learned his art during his ten-year service in the early missionary days of the Fiji Islands while functioning as head barbecuer for King Bobo. If general good feeling and abandonment of professional care were indicators of a good time, then this barbecue was one such event. Good things for the stomach, good fellowship and the soft silvery lure of the August moon. Who wouldn't be happy? The Uplifters Club sang, and a new organization of the "Sons and Daughters of the Oppressed Who Will Arise" was present in force.



A. J. HOOD, M. D.
President Pacific Association of Railway Surgeons
1929-1930

The scientific program was sufficiently varied to be interesting. Many interesting points, medical and surgical, were brought out. The program is given below.

The Washoe County Medical Society and the visiting surgeons were under obligation to the fine courtesy of the local Lodge 597 of the "Best People On Earth," who gave their big tepee unreservedly for the use of the Big Medicine Men of the Iron Horse.

Especial mention must be given to some of the wives of members of the local profession who bore special responsibilities during the session. Among such were Mesdames S. K. Morrison, J. L. Robinson, George L. Servoss, W. E. Samuels, and Hood, Sr. Also the splendid assistance in procuring transportation rendered by Messrs. Walker and David of the Reno Chamber of Commerce.

The large number of doctors who attended—many with their families—and the good will expressed as to the pleasant and happy time had with the native Washoes, will last for many days to come.

Dr. A. J. Hood of Reno, Nevada's oldest practicing physician, here since 1886, and an Ann Arbor graduate, was elected president for the ensuing year. Dr. Giles S. Hall of Los Angeles was elected vice-president and Dr. W. T. Cummins of San Francisco was re-elected secretary. San Diego was chosen for the 1930 annual session.

Come again, Railway Surgeons!

Oh take me back to Reno,
Where the sky is always blue,
Where mountain, vale and river
Always seem to welcome you.

* * *

The complete program of the session was as follows:

FRIDAY, AUGUST 23, 9 A. M.

Address of Welcome, Hon. E. E. Roberts, Mayor.
Treatment of Varicose Ulcers and Varicose Veins,
Dr. Curtis E. Smith, San Francisco.

The Medical Management of the Ordinary Case of
Pulmonary Tuberculosis, Dr. Robert A. Peers, Colfax.

The Relationship of Chronic Sinus Infection to
Chronic Bronchitis and Bronchial Asthma, Dr. O. J.
LaBarge, Salt Lake City.

Common Clinical Types of Sacro-Iliac Strain, Dr.
H. C. Pitkin, San Francisco.

Demonstration: New Process of Magnetism for
Extraction of Foreign Bodies from Eye, Dr. J. L.
Robinson, Reno.

SATURDAY, AUGUST 24, 9 A. M.

Presidential Address, Dr. Philip Stephens, Los
Angeles.

Case Report of Splenectomy, Dr. E. F. Root, Salt
Lake City.

The Medical Treatment of Peptic Ulcer, Dr. Philip
King Brown, San Francisco.

Perforated Peptic Ulcer, Dr. W. W. Washburn,
San Francisco.

Absorption of Glucose per Rectum, Dr. J. J. Press-
man, Los Angeles.

Carcinoma of the Rectum, Dr. Dudley Smith, Oak-
land.

Demonstration: New Transfusion Apparatus, Dr.
P. F. McMurdo, San Francisco.

COMPONENT COUNTY SOCIETIES

WASHOE COUNTY

The Washoe County Medical Society met at the
Nevada State Hospital on Tuesday evening, Sep-
tember 10, at the invitation of the superintendent,
Dr. George R. Smith.

In the absence of Dr. J. L. Robinson, Dr. M. A.
Robinson was made presiding officer.

The minutes of the last meeting, including a report
of the twenty-seventh annual meeting of the Pacific
Association of Railway Surgeons at Reno, August 23
and 24, as guests of this society, were read and
adopted.

The evening's program was given to the eye, ear,
nose, and throat men to discuss special lines of in-
terest pertaining to the needs of the general prac-
titioner.

Dr. John H. Fuller, opened with the subject, "What
the General Practitioner Should Know About the
Mouth." Doctor Fuller dealt with this apparently
limited subject in a most practical manner. Among
some of the points brought out was that when a
patient presented himself to the physician for an ex-
amination involving inspection of the mouth, the
medical man should observe the architecture of the
mouth, such as the palatal arch, the teeth, whether
caries were present, or whether, in a child's case, the
teeth should be corrected to normal curve by having
the child visit a dentist, the condition of the tongue
for fissures or sores or lumps. If lumps were found
far back on the tongue, and the patient of middle age
or past, a suspicion of cancer should be in the mind
of the physician and the case should be kept under
treatment and observation. The color of the fauces
should be observed; likewise, the physician should
observe that a red, streaky pharynx was not always
a case of infected tonsils. Vincent's angina, so com-
mon today, especially in people with carious teeth,
but practically absent where there are no teeth, and
leucic sore mouth should be differentiated when seen,
as such differentiation is easily made in the labora-
tory. Abscesses, whether tonsillar or retropharyngeal,
should receive intelligent care. Doctor Fuller stated
that the anterior cervical glands would sometimes
swell as a result of lymphatic current flow, and if
such were to be surgically treated, it would be wise
to wait until localization had taken place, because the
patient might be seriously averse to having a second
operation done if the first did not bring pus.

With reference to tonsillectomy, if acutely inflamed,
it would be far safer to wait until leukocytosis had
quieted down, which would greatly help in relieving
the patient from possible future surgical or systemic

trouble. Tonsillectomy was not an operation to be lightly undertaken, in view of possible bleeding and of meeting an adventitiously placed blood vessel.

Lastly the essayist spoke of aphonia. This trouble occurring in people past middle age, carcinoma should be considered. Those in middle age, syphilis or tuberculosis should be kept in mind as possible causes.

Dr. Earle Creveling followed with a brief paper on the use of the ophthalmoscope. This useful adjunct to the physician's armamentarium was invented in 1861 by Doctor Helmholtz. By an intelligent use of this instrument the physician can materially aid in arriving at the status praesens of the case under treatment. Arterial hypertension will show in the dilated vessels of the retina, their distortion and exudations (if present), also swollen disk. Especially valuable in types of albuminuria, and strikingly so in the advanced types, where the patient complains of loss of sight with the usual symptom complex shown in the case. The swollen optic disk, the cottony-looking exudates about the macula, the fine striated hemorrhages, all combined, will aid the physician materially in giving a prognosis, as the life term in this type of albuminuria is limited. Likewise, in the mellitus diabetic, the findings are a most valuable aid toward a better survey of the case and help in the estimation of cataract difficulties likely to arise.

Lastly, Doctor Creveling called attention to the better diagnosis showing greater frequency of glaucoma in patients today. Contrary to the general medical opinion, this disease is not always of the fulminating character, as supposed by some, but it may insidiously advance through a period of months or years by gradual increase of symptoms that should indicate to the nonspecialist physician that the eyeball is gradually hardening, and if permitted to continue without proper attention the unfortunate patient will eventually merge into that world where darkness ever reigns.

There were many other points of interest developed by the essayist and those who assisted in discussion. Enough so that, in consideration of the need of a better education, the general practitioner who heard both papers and discussions would be inclined to think that his little trodden path of one-way medicine could better be turned into a broader one and he should become a general specialist.

The concluding paper, by Dr. F. W. Dersheimer of Cleveland on the "Neuropsychiatric Management of Patients," was interesting, as it brought out the doctor's own viewpoint in handling that class of patients. The various theories dealing with the neurotic patients were discussed and compared. In closing, the essayist called attention to the fact that leading colleges were now including this study as a coordinate in the major lines of medicine and surgery.

Following the scientific meeting, the society was called from labor to refreshment at the private home of Dr. and Mrs. Smith, where an excellent menu was served to the doctors present. In addition there was a rare treat given by a high-class orchestra playing during the evening.

The social side was greatly enjoyed, which was quite evident by the way the doctors lingered at the table. A rising vote of thanks was given host and hostess and, after many a kind word, the society adjourned.

THOMAS W. BATH, Secretary.

NEVADA NEWS

It is a pleasure to announce that construction on the new Saint Mary's Hospital for Reno has been started.

The informal ground-breaking ceremonies were held on the site of the new hospital at 7 p. m., Thursday, August 15. There were a large number of the distinguished Sisters of the Dominican Order present. There was also a large representation of the local clergy, together with practically the entire staff of the hospital, and nurses. Also a generous gathering of interested friends of the institution.

Introductory remarks outlining hospitalization from the days of the Crusades to the present, and stressing the progressive spirit of the Dominican Order, were dwelt on by Dr. Thomas W. Bath, secretary of the Washoe County Medical Society. Dr. Horace J. Brown, ex-chief of the staff, followed with an appropriate speech, and in turn presented the shovel to Dr. S. K. Morrison, present chief of the staff, and the pick to the Rev. Father Moran, who formally broke the ground for the new hospital.

The ceremony took place under auspicious conditions. The mellow August sun was just setting over the crests of the majestic Sierras, and the Carson Valley was flooded in golden and purple light.

The new hospital will have seventy-five rooms and will cost about \$200,000. It will embrace every scientific detail for the care and comfort of its patients as well as for efficient service by its working staff.

We bespeak for the new hospital a large field of real usefulness. In view of the great development of Nevada, such as the Hawthorne ammunition depot, built for naval use under United States supervision, the work on the Boulder Canyon dam, and the development of the mountain areas in the Sierras adjoining Reno, the new Saint Mary's Hospital has a bright future before it.

Usefulness of a "Precedent Book."—In many modern hospitals it has been found useful to keep a record, a so-called "Precedent Book," of established practice in the use of new methods of treatment which makes available the details of such treatment for use by the members of the staff, their assistants, and house officers. Such a precedent book has become almost an essential in recent years owing to the rapidity with which advances are made and new methods become available in medical treatment. It has several advantages.

The technical details of newer procedures are often difficult to carry in mind, and yet accuracy and exactness are essential to success in using them. The "Precedent Book" gives such details in the form accepted by the staff through a committee appointed to pass upon and recommend such procedures for adoption. The special experience of some members of the staff may be called upon in formulating the recommended treatment for certain conditions, and so by a cooperative arrangement the hospital as a whole profits. The attempt to put into written form a description of a therapeutic procedure encourages simplification, criticism, and efforts to improve methods altogether in keeping with the principles of efficiency and economy expressed by President Hoover. Furthermore, additional security is afforded both to the physician individually responsible for the patient, and to the hospital, when it is possible to carry out treatment by methods which have been so thoroughly tested, although new, as to be accepted by the staff as a whole.

Today the dietary treatment of certain common diseases lends itself most strikingly to such a treatment. Rapid progress has been made, and yet few physicians have the time to devote to a special and intensive study of this subject. In diabetes, the dietary treatment has been simplified by the adoption in certain diabetic clinics of a few standard diets. Emergencies arise in the course of diabetic treatment, notably acidosis, or surgical conditions, which require very specialized management. An outline for the treatment of such conditions might well be included in the "Precedent Book." Precautions to be observed in the giving of subcutaneous infusions or of intravenous treatment, an outline of treatment for duodenal ulcer, the treatment for such an emergency as mercury bichlorid poisoning, the procedure to be followed by the house officer in various emergencies, and many other subjects would be suitable for consideration by the hospital staff in such a "Precedent Book." Once begun, the "Precedent Book" will be continued because its usefulness will be appreciated.—*The New England Journal of Medicine*, August 8, 1929.

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: Comment on Current and Recent Articles in the Journal; News; Medical Economics; Correspondence; Department of Public Health; California Board of Medical Examiners; and Twenty-Five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Medical School Opens.—With a capacity registration of one hundred and one students and a teaching and laboratory staff of twenty-four, the School of Medicine of the University of Southern California has begun its second year. In accordance with its announced program it is offering this fall the first two years of preclinical work. In 1930 it plans to add the first year of clinical training to its curriculum, and in 1931 to round out the full four years of work by adding the second year of clinical work.

Under the direction of Dean William D. Cutter there has been gathered together a complete preclinical teaching staff, consisting of five professors, two associate professors, four instructors, six demonstrators, and six assistants. In building up this faculty Dean Cutter has brought men and women from all sections of the United States with the view of assembling the best teaching staff to be had and thereby laying the foundation for a medical school that would be comparable to the leading medical schools of the nation.

As professor of anatomy Dr. Paul S. McKibbin, formerly head of the department of anatomy, University of Western Ontario Medical School, and latterly professor of anatomy at the University of Michigan, has been named. To the post of professor of biochemistry has been appointed Dr. Harry J. Duel, who has been successively instructor and assistant professor of physiology at Cornell University, and professor of physiology at the University of Maryland. As professor of pathology and bacteriology has come Dr. Ernest M. Hall, recently assistant professor of physiology at Stanford University and pathologist at Palo Alto Hospital and Saint Vincent's Hospital, Los Angeles. To the position of professor of medicine and chairman of the department of medicine has been appointed Dr. Burrell Otto Raulston, a member of the staff of the Saint Vincent's Hospital since 1926.

From the University of California at Los Angeles, where he was associate professor of parasitology, has come Dr. John F. Kessel to be associate professor of bacteriology and parasitology. From the faculty of the University of Oregon Medical School, where he was assistant professor of pharmacology, there has been called Dr. Clinton H. Thienes to be associate professor of pharmacology.

Four have been appointed to the staff in the rank of instructors: Dr. Esther H. Bartosh, formerly instructor in the College of Medical Evangelists and more recently associated with the City Maternity Service, Los Angeles, as instructor in anatomy; Dr. Philip Randall Fulton, former medical missionary in South China and among the Navajo Indians, and superintendent of hospitals in Linchow and Canton, China, and Ganado, Arizona, as instructor in anatomy; Frederick C. Messer, assistant and instructor in physiological chemistry, Syracuse University, as instructor in biochemistry; and Dr. Lawrence Parsons, formerly assistant pathologist, Los Angeles County Hospital, as instructor in pathology.

To the demonstration staff of the school the following have been named: Demonstrators in anatomy—Dr. Clifford L. Bartlett, former director, diagnostic laboratory and out-patient clinic, Methodist Hospital of Southern California; Dr. Arthur H. Nixon, former assistant in pathology, University of Chicago; Dr. Floyd R. Parks, former instructor in pathology, Tufts

College Medical School; Dr. Elroy F. Sheldon, recently intern at the California Hospital; and Dr. Kenneth W. Taber, formerly intern, Methodist Hospital of Southern California. Demonstrator in pathology—Dr. Joseph C. Vinetz, resident physician and surgeon, Saint Vincent's Hospital, Los Angeles.

Six have been appointed assistants. They are: Dr. Joseph S. Butts, former instructor in physiological chemistry, Massachusetts Agriculture College, as assistant in biochemistry; George W. Hewitt, formerly laboratory assistant and technician in chemistry, University of Southern California Medical School, as assistant in bacteriology; Ruby S. Moede, technical assistant in physiology and pharmacology; C. C. Prouty, formerly assistant professor of bacteriology, University of Idaho, as assistant in bacteriology and parasitology; Edythe Josephine Rose, formerly of the department of bacteriology, University of California, as technical assistant in bacteriology; and Paul W. Smith as teaching fellow in physiology and pharmacology.

Permanent Organization of the Pan-Pacific Surgical Congress.—Following the close of the Pan-Pacific Surgical Conference, permanent organization was decided upon, and Dr. George W. Swift was elected first president.

Other officers elected were: Secretary and treasurer, Dr. F. J. Pinkerton, Honolulu; chairman for Pacific Coast area, Dr. E. L. Gilcreest, San Francisco; vice-chairman Pacific Coast area, Dr. Robert Matson, Portland; member of council for Honolulu, Dr. N. M. Benyas.

Chairmen and vice-chairmen for the various other areas are to be selected later. The next meeting of the organization will be held in Honolulu in 1932. While the delegates unanimously agreed that no more pleasant place than Honolulu could be found for the conference, some believed it would be wise to meet in various countries of the Pacific, after holding the next conference in Honolulu. The naming of Honolulu as a permanent meeting place was finally left in the constitution of the organization, when it was pointed out that an amendment to the constitution could be made when necessary.

Hope of expanding the organization into a medical conference, with surgery only one section or of meeting with the Pan-American Medical Association or the Far Eastern Association of Tropic Medicine, also was discussed.—*The Honolulu Territorial*, 1929.

Eighty-First Semiannual Meeting of the Southern California Medical Association.—The Southern California Medical Association will hold its eighty-first semiannual meeting in the Beaux Arts Hall, Los Angeles, Friday and Saturday, November 8 and 9, 1929. One session will be devoted to the consideration of the cost of medical care and hospitalization. Among the other subjects to be discussed are the following:

Recent European advances in cancer therapy; sodium amytal as a general anesthetic; mechanism of the production of symptoms in chronic constipation; present status of therapeutic procedure for contracture of the bladder neck; end-results of pyelitis in children; symposium on headaches; esthetic plastic surgery; and the treatment of skull fractures.

Professor Oscar Frankl of Vienna will deliver an address at one of the evening sessions.

Cancer Clinic at University of California.—Gift of \$5000 for the equipment of a thoracic surgery and cancer clinic at the University of California was announced yesterday to the regents at their annual meeting by President W. W. Campbell of the university. The \$5000 is the gift of Mr. and Mrs. George H. Roos.

Stanley P. Black Memorial Lecture.—The first of the 1929 Stanley P. Black Memorial lectures was given in the Stanley P. Black Memorial Hall at 65 North Madison Avenue, Pasadena, on Wednesday evening, September 11, 1929.

Dr. Charles Richet, professor of medicine, University of Paris, made the address. His subject was "Food Anaphylaxis on Azotized Basis."

Herzstein Medical Lectures.—The Herzstein Medical Lectures, for which the late Dr. Morris Herzstein left an endowment of \$20,000 to the University of California and Stanford University, will be started this fall, according to plans announced by Dean Langley Porter of California.

In addition to the \$20,000, in which the state university will share, Dr. Herzstein left the residue of his estate to the University of California, approximately \$637,000. In accordance with his wishes, \$100,000 of this sum will be used as an endowment for a chair of biology either in the Medical School or on the Berkeley campus.

Dean Porter states that arrangements have been made with Stanford by which the Herzstein Lectures will be alternated with the Lane Foundation Lectures in the same field, which Stanford now sponsors.

The object of such foundations is to bring to California the world's most outstanding authorities in medicine in order that physicians of the state will have an opportunity to talk to them and hear them speak from the lecture platform. It is believed that programs of this type are invaluable in keeping medical men apprised of the work of their fellow physicians in distant parts of the globe who have achieved eminence by their contributions to the alleviation of human suffering.

Clinical Congress of American College of Surgeons. The American College of Surgeons will hold its nineteenth annual Clinical Congress in Chicago, October 14-18. Headquarters will be at the Stevens Hotel. An intensive program is being planned to make this home-coming event the greatest in the history of the college. The Hospital Standardization Conference will consist of morning and afternoon sessions on Monday to Thursday, inclusive. There will be a series of clinical demonstrations given by George W. Crile, Cleveland; John B. Deaver, Philadelphia; John M. T. Finney, Baltimore; Charles H. Mayo, Rochester, and others. Monday evening's program will include an address of welcome by the chairman of the Chicago Committee on Arrangements, Dr. Herman L. Kretschmer; the address of the retiring president, Dr. Franklin H. Martin, Chicago; the inaugural address of the new president, Major-General Merritte W. Ireland, Washington, D. C.; and the John B. Murphy Oration in Surgery by Professor D. P. D. Wilkie of Edinburgh. Among the foreign visitors will be Dr. James Heyman of Stockholm, Dr. Thierry de Martel of Paris, Visconte Aguilar of Madrid, and Mr. Herbert Tilley of London. Tuesday, Wednesday, and Thursday evening sessions will consist of scientific papers presented by surgeons from the United States, Canada, and from abroad. The annual convocation of the college will be held on Friday evening. The fellowship address will be delivered by Dr. Glenn Frank, president of the University of Wisconsin. The annual meeting of the governors and fellows will be held Thursday afternoon, followed by a symposium on cancer and bone sarcoma. An all-day session on traumatic surgery will be held on Friday in which leaders in industry, labor, indemnity organizations,

and the medical profession will participate. A special program has been arranged that will be of interest to those whose practice is limited to surgery of the eye, ear, nose, and throat. A feature of the Congress will be the showing of surgical films that have been produced under the supervision and approved by the Board on Medical Motion Pictures of the College. New developments in color photography will be demonstrated. In addition to the commercial exhibits there will be scientific exhibits by the departments of the college. A rate of one and one-half the regular one-way fare has been granted on railroads of the United States and Canada to those holding convention certificates.

The Pasteur Society of Central California held a meeting on Wednesday, September 25 at the Hotel Whitcomb to consider various aspects of the recent outbreaks of meningitis.

Dr. J. C. Geiger, associate professor of epidemiology, University of California Medical School, and Dr. H. H. Darling, research associate in medicine, Hooper Foundation, spoke on the epidemiology; Dr. J. C. Perry, senior surgeon, United States Public Health Service, medical director fifth district, on the "Meningitis Control Methods of the Public Health Service"; Dr. E. B. Shaw from Children's Hospital, San Francisco, on "Serum Treatment for Meningitis"; and Dr. W. H. Kellogg, director of the bacteriological laboratory of the State Board of Health, on "Bacteriology and Types of the Meningococcus."

Doctor Geiger has been in close connection with the epidemiological factors. Doctor Darling has recently returned from a trip through the Orient, where he has studied the origin of the epidemics. Doctor Perry has had supervision and control of the recent epidemics among immigrants and is in charge of all public health work of the Southeast coastal district. Doctor Shaw has had considerable experience in the treatment in and about San Francisco. Doctor Kellogg is in close contact with the bacteriological investigation throughout the state.

TWENTY-FIVE YEARS AGO*

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. II, No. 10, October 1904

From some editorial notes:

... **Intelligent Health Board.**—There are various ways in which communities gain fame or notoriety. One pretty good way is through the local Board of Health. San Francisco seems to have gained somewhat more than its share of notoriety in this manner, and there appears to be a good, big lot of it still coming. The Board of Health has just issued a brief pamphlet entitled "Health Hints for the Household—A Brief Treatise on Infectious, Contagious or Communicable Diseases." This is a curious collection of conglomerate cogitations collected and compiled, not by a lunatic, but "under the auspices of the Board of Health"!

... Doctor Welch ought not to have delivered the Lane Lectures until after perusing the "Health Hints for the Household"; he could have picked up a whole lot of real first-class education, and a few pointers on infection as well. "Man and other animals, and especially their excreta, are the prime movers of infection." And again: "Cleanliness or cleanliness means then the absence of dirt, and though an acquired taste." Just like olives, sardellen, etc.

... **To County Secretaries.**—The Publication Committee desires to thank those county society secretaries who have sent in reports of their society meetings. Thanks are also due a number of secretaries

* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

for the prompt manner in which they answer letters. If there is one virtue more commendable than all others, it seems to be that of promptly answering a letter. There are a few secretaries who do not send in regular reports, or who did do so but have fallen from grace. Will you gentlemen please consider the value to your members of sending in these reports? . . .

... *Danger Ahead.*—It is time that every physician in the state took heed for the future. The state legislative body will assemble to tinker and tamper with the laws before many months have passed, and it now seems absolutely certain that an attempt will be made to so modify the Medical Practice Act as to completely emasculate it. . . .

... *A Curious Condition.*—There seems to be more or less complaint all over the country in regard to the hodgepodge appearance of the average drug store, and the large number of proprietary medicines and nostrums carried and sold by the average druggist. . . .

... *Another State Society Journal.*—The *Journal of the American Medical Association* publishes a lot of advertising of this sort, and because it is guilty of breaking to smiths the American Medical Association "principles of ethics," most medical journals of the country do the same thing, and for excuse proudly boast that the advertisement appears in the Association journal, and hence it must be all right. The "uriseptin" case, already cited, is rather a good illustration for the reason that the "ad" was thrown out of our journal some months ago (as soon as we learned of the fakeness of the "formula"). . . .

From an article on "Cases of Acute Suppurative Appendicitis Treated by the Ochsner Method" by Wallace I. Terry, M.D., San Francisco:

... I should feel like apologizing to this society for presenting a paper on the time-worn topic of appendicitis were it not that my experience in dealing with several cases of the acute suppurative form by the Ochsner method has been so fortunate that I wish to record my belief in the rationality and value of the procedure. . . .

From an article on "Epinephrin—The Active Principle of the Suprarenal Gland—A Second Word" by Philip Mills Jones, M.D., San Francisco:

... Now what is it all about? Why, about what we shall call the crystallin-active blood-pressure-raising principle of the suprarenal gland. Obviously we cannot call it all that, and live. Nor can we call it adrenalin-adrenephrin-adrenamin-adrenol-adrin-caprenalin-hemisin-hemostatin-suprarenalin; life is too short. Aberhalden and Bergell use the name "epinephrin," and do not demand that "it be blotted from the literature," as evidenced by the title of their paper, "Über das Epinephrin (Epirenan)."

Epinephrin seems to be a pretty good name for this particular thing. Some years ago Abel discovered that a chemical acting like this did exist, though he had not isolated it, and he named it epinephrin. That sort of thing has happened many, many times in chemical work, and is well known and accepted. Helium was known to exist as such, and was named long before anyone isolated it as an element; so with radium. And so, too, so far as the evidence goes, with epinephrin. . . .

From reports of county societies:

... *San Diego County.*—The regular meeting for the month was held on September 2, at which time Dr. R. L. Doig read a most excellent paper on the use of epinephrin, the active principle of the suprarenal gland, particularly in asthma. . . .

... *San Francisco County.*—The regular meeting for the month was held on the evening of September 8, the president in the chair. Doctors Herbert Moffitt and C. M. Cooper drew attention to the value of good radiograms of the chest in helping to differentiate between intrathoracic tumors and aneurysms, especially in those cases where the clinical fluoroscopic findings were not in accord. . . .

... A discussion upon the progress made by the Executive Committee in the matter of the arrangements for prosecuting illegal practitioners was precipitated by Doctor Tait. . . .

... It is quite apparent to your committee that this was due to the fact that the *Journal of the American Medical Association* receives in its advertising columns material of the most questionable character. When one considers that one of the principles of ethics of the association is that "It is equally derogatory to professional character for physicians to dispense or promote the use of secret remedies," it is plain to your committee that the committee on ethics of the American Medical Association realizes that the journal has grossly abused the principles for which the association stands, and that it hesitates to commit itself to a public acknowledgment of this fact. . . .

... *Santa Barbara County.*—Resolved, That it is the sense of the Santa Barbara County Medical Society that when "diphtheria" exists among poor people the city should furnish free of charge a sufficient quantity of antitoxin for the treatment of each case; also a sufficient quantity for the purpose of preventing the spread of the disease.

The secretary is hereby instructed to present a copy of the above resolution to the Honorable Mayor and City Council. . . .

From an item in California Academy of Medicine Proceedings:

... Doctor Cooper also called attention to a method of x-ray examination practiced by him, and so far as he knew, an original method. In examining the abdomen, he inflated the colon with air and then examined with the screen, thus being able to see clearly the shadow of the kidneys, liver, spleen, colon, etc. Doctor Moffitt commended the proceeding highly, and had found it of very great usefulness. . . .

From an item on the State Nurses' Association:

... The California State Nurses' Association is an organization that should receive the heartiest support of every physician. . . .

... The State Association hopes to secure legislation which, through state registration of nurses, will mark a most important advance in the status of the profession in California." . . .

From some personals:

... Professor William Osler, until recently of Johns Hopkins, has been appointed regius professor of medicine at Oxford University, England, and we are advised that King Edward has been graciously pleased to confirm the appointment. Oxford is to be congratulated upon securing a man who is one of the best, if not indeed the best physician, student and exponent of medicine of his time. . . .

From minutes of the Council—Membership in sectarian societies—Councilor districts rearranged:

... The Council met on September 10 and transacted a good deal of business.

Among other things it arranged the councilor districts as follows: First, San Diego, Riverside, Orange, San Bernardino; second, Los Angeles, Ventura, Kern; third, Santa Barbara, San Luis Obispo, Monterey; fourth, Fresno, Kings, Tulare, Merced, Mariposa, Madera, Stanislaus, Tuolumne; fifth, Santa Clara, San Mateo, San Benito, Santa Cruz; sixth, San Francisco; seventh, Alameda, Contra Costa, San Joaquin, Calaveras; eighth, Sacramento, Amador, El Dorado, Alpine, Placer, Nevada, Yuba, Sutter, Sierra, Yolo, Butte, Plumas, Lassen, Inyo, Mono, Glenn, Colusa, Tehama, Shasta, Modoc, Siskiyou; ninth, Marin, Sonoma, Lake, Mendocino, Solano, Napa.

The Council ruled that membership in a homeopathic or eclectic medical society constituted "supporting" sectarian medicine, and that consequently members of such societies could not be eligible for membership in affiliated county medical societies. . . .

DEPARTMENT OF PUBLIC HEALTH

By W. M. DICKIE, Director

Health Officers Will Meet in Oakland.—The regular annual meeting of the health officers of California will be held in Oakland, October 7 to 11, 1929. This meeting will be held, as usual, in conjunction with the annual conference of the League of California Municipalities. All sessions will be held in the Hotel Oakland.

Typhus Fever Case Reported in Northern California.—A woman, past middle age, arrived in Stockton recently from Texas, having crossed the border into Mexico while en route. Before her arrival in Stockton she complained that she felt somewhat languid and not particularly anxious to travel by automobile. She suffered a distinct chill followed by fever, which was followed by coughing and the appearance of a number of rose spots, which became quite profuse and well distributed over the entire body. It was thought at first that it might be a case of typhoid fever, but the run of temperature, pulse, the profusion of the rose spots and the similarity of the rash to that of typhus fever aroused the suspicions of the attending physicians and the health officer, with the result that the case was pronounced one of typhus fever. A positive Weil-Felix test was obtained, but tests on guinea pigs with blood inoculations from the patient produced negative results.

According to the history of the case, the patient left her home in a small town of Texas, where she had lived for six years, stopping at El Paso May 24. During the day she took a street-car ride across the Mexican border, spending some time in Juarez, returning to El Paso at night. The hotel where the patient stopped was very neat and clean. On May 25 she proceeded to Los Angeles, where she spent several days. She arrived at Yosemite May 30 and complained that she felt chilly during a stay there. The patient arrived in Stockton on May 31, and on June 3 complained of languidness. On June 4 she had a distinct chill, followed by a fever. A physician was called on June 6, and on the following day came the appearance of the rose spots, which, on June 9, had become very profuse. The patient's temperature dropped to normal on June 19, possibly fifteen days from the time of the onset. The patient is of a superior type, and the evidence would indicate that the disease was picked up on her trip to the Mexican border. Recent public health reports indicate that endemic typhus fever may be transmitted by means other than the body louse, and it would seem that this case must have been contracted in some other manner.

Clams Placed Under Quarantine with Mussels.

Because of the appearance of many cases of poisoning in persons who had consumed mussels gathered along the coast of northern California early in July, a quarantine was placed upon these shellfish under the provision of which their sale or offering for sale was prohibited. This quarantine originally included only San Mateo County, but later was extended so as to include all of the territory from Monterey County to the Oregon line. On August 3 and 4, thirteen cases of mussel poisoning, with one death, and six cases of clam poisoning, three of which were fatal, were reported to the State Department of Public Health. This was the first time that cases of clam poisoning had been brought to the attention of this department. These clams were gathered along the coast line of Marin and Sonoma counties and San Mateo County was included later because of the fact that poisonous shellfish of this order were gathered on the shores of that county. Specimens of different varieties (quahog, Washington, and horseneck) were collected and submitted to the laboratory of The Hooper Foundation for Medical Research, University of California, for examination. These were found

to be highly toxic, but specimens of abalones and oysters, which were also submitted for examination, did not show any toxic condition.

It is apparent that during the height of the summer season mussels and clams may be highly poisonous. This condition gradually abates until the beginning of winter, when they do not show any signs of poison. With the beginning of spring, however, the toxic conditions starts, reaching its peak again during the height of midsummer.

Mosquito Control Measures Instituted in Southern California.—The anopheles mosquito, which transmits malaria, fortunately is not found in southern California, but other types of mosquitoes which exist here may inflict painful wounds which are likely to become infected, causing considerable personal discomfort, if not acute illness. Wherever there is standing water, mosquitoes may breed. The variety that is commonly found in the salt marshes is particularly ferocious, and beach parties and bathing parties are subjected to great discomfort through the attacks of these insects.

Four mosquito abatement districts are in process of organization in southern California at the present time. These are located in the vicinity of Venice, in Orange County, San Diego, and Riverside. Under the Mosquito Abatement District Act, funds are derived through a tax levy based upon assessed valuations of property included within the district. The operations of a mosquito abatement district consist mainly in the elimination of all places where standing water may collect and in the destruction of mosquitoes while they are in the larval stage. The direct activities are drainage of bodies of standing water by means of ditching; filling depressions so as to prevent formation of pools of water; oiling pools, where drainage is not feasible, for the purpose of destroying mosquito larvae; the poisoning of mosquito larva by means of insecticides; and the implantation of top minnows where none of the methods, as outlined, may be feasible.

The top minnow used for this purpose in California is *Gambusia affinis*, which is a native of the southern and eastern states. The State Department of Public Health imported six hundred of these fish into California in 1922, and it is estimated that there are now fifty to sixty millions of these mosquito destroyers in California waters. The department maintains thirty hatcheries whence mosquito abatement districts throughout the state receive their stocks for mosquito control work. This mosquito fish is viviparous, the young being born directly from the body of the mother fish. The male of the tribe is from three-quarters of an inch to one inch long, and the female grows to a length of one and one-half to two inches. They are extremely tolerant of adverse conditions and will even live in brackish water, but not in salt water. They constitute one of the most valuable allies now being used throughout California in the control of mosquitoes.

With the addition of four new mosquito abatement districts in California, the total number to be operating within the state will rise to more than twenty. These districts have proved their value in the control of these pestiferous insects, which constitute a distinct menace to health and comfort.

Changes Announced Among Health Officers.—On August 1, Dr. W. R. Hoffman succeeded Mr. M. E. Reed as city health officer of Roseville.

Beginning the first of July, Dr. John T. Harrington took over the duties of the Santa Cruz City Health Department, succeeding Dr. N. R. Sullivan, who has been city health officer for several years.

Dr. W. E. Weddle was appointed city health officer of Parlier August 1, 1929, taking the place of Dr. R. H. Carter.

Dr. Louis L. Robinson was appointed health officer of Larkspur, Marin County, August 1, 1929, in place of Dr. Lester Newman.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, M. D.
Secretary of the Board

News Items, October

One hundred and ninety-four graduates of medical colleges and seventeen graduates of chiropody schools passed the July written examinations given by the Board of Medical Examiners.

The Department of Professional and Vocational Standards has been organized with Mr. James Collins of Long Beach, director, and Mr. Harry C. Morgan, former foreign and intelligence operator for the government during the war, as executive secretary with offices in Room 219, State Capitol Building, Sacramento.

Following true bills against five men as leaders in the fake license syndicate, State's Attorney John A. Swanson called in leading doctors to check up on medical and dental licenses of practitioners of the county. Efforts to brand Dr. H. H. Miller, recently dismissed as head of the State Department of Registration and Education, charged as leader of the fake license bureau, continued tonight. Named with Miller in the true bills are L. Mitchell Blaine, Harry Goldstine, Albert Barron, and Dr. John Torbert. Blaine, Barron, and Torbert found "customers" for Miller, it is alleged, inducing medical students who could not pass their examinations to buy licenses. Prices ranging from \$1000 to \$2400 (International News Service, dated Chicago, July 31, 1929, printed, Washington, D. C., *Herald*, August 1, 1929). Previous entry, September 1929.

According to a report from the Nevada Board of Medical Examiners, an individual giving the name of A. B. Cheatham, claiming to be the A. B. Cheatham who, for the past fifteen years is reported to have been located at Millerview, Texas, obtained a license to practice in the State of Nevada, which was recently reported revoked on the grounds that the same had been obtained on presentation of fraudulent credentials. The individual, claiming to the Nevada board that he was A. B. Cheatham, is said to be Samuel A. Cheatham. Investigation fails to disclose that he has any medical credentials. However, he has been ship surgeon sailing from the port of San Francisco.

Damages aggregating \$75,000 for automobile injuries received last February 2 are asked by Mrs. Tillie C. Randall, a 70-year-old inmate of the San Francisco Relief Home, in two Superior Court suits filed yesterday. And in one of the suits is incorporated charges that the permanently injured woman was refused aid by three hospital associations to which, she charges, she paid a monthly stipend over a period of years for the emergency in which she finally became involved. . . . In the charges she has filed against the Liberty Hospital Association, Grace Darling Hospital Association, and the International Hospital Association, the aged woman sets forth that when she applied for medical assistance as specified in her contract, she was refused. . . . Inquiries subsequent to the suits disclose that all three hospital associations are listed in the same office in the Phelan Building. . . . (San Francisco *Examiner*, September 4, 1929).

Percy Purviance, whose Berkeley chiropractic college and Berkeley chiropractic high school were ordered closed by court decision as "diploma mills," yesterday asked the Alameda County Board of Supervisors to permit him to dissect cadavers for instructional purposes at the "Golden Gate Chiropractic College and School of Physiotherapy and Psysicotherapy." Board members decided that the request for the per-

mit was a matter for the institutions' commission to worry about (*Martinez Gazette*, July 31, 1929). Previous entries December, 1925; January, February, June, July, September, October, 1926; February, 1927; March, April, July, September, 1928; January, 1929.

George (Rush) Meadows, former University of Southern California football star, attorney and ex-convict, today was sentenced by Superior Judge Charles Fricke to serve seven to twenty years in Folsom prison. He was convicted on eleven counts of grand theft of \$31,000 from the family of John R. Osborne, allegedly obtained on representations to them that he could obtain a pardon for the latter, a prisoner at Leavenworth penitentiary (Associated Press dispatch, dated Los Angeles, August 22, 1929; published in the San Francisco *Examiner*, August 23, 1929). September "News Items" mentioned Meadows as associated with Higashi in an alleged diploma mill operated in Los Angeles.

Found guilty of practicing without a physician's certificate, S. Takeda, owner of a local massage parlor, was sentenced to sixty days in the county jail by Judge Phil Hayward. It appeared from the evidence submitted that the Japanese had violated the Medical Practice Act. . . . and the judge suspended the sentence, pending Takeda's future actions (Watsonville *Pajaronian*, August 22, 1929).

Named by Mrs. L. Gonzales as the person who performed her illegal operation for a fee of \$10, Frederico Afaya, thirty-nine, shoemaker and spiritualist, yesterday was arrested. . . . (Los Angeles *Illustrated Daily News*, July 31, 1929).

Conviction of petty theft in connection with asserted operation of a "diploma mill," Dr. Charles A. Cale, chiropractor, was sentenced to pay a fine of \$750 and serve ninety days in jail yesterday by Municipal Judge Caryl Sheldon. The chiropractor, who conducts the Cale Chiropractic College at 406 West Seventh Street, was found guilty by a jury in Judge Sheldon's court last week. Following his sentence yesterday, Doctor Cale gave notice he would appeal his case, and was released on \$1000 bond (Los Angeles *Examiner*, August 29, 1929; prior entry, September 1929).

Dr. R. W. Cook, 6277 Van Nuys Boulevard, reported the theft of his medical case containing a quantity of narcotics and a hypodermic set from his automobile to officials of the local police division (Burbank *Tribune*, August 7, 1929). Licentiatees are again warned against depredation by addicts. (Previous entries appear May 1927.)

Reports relate Beatrice Cary recently pleaded guilty in Santa Monica on a charge of violation of the Medical Practice Act, and was sentenced by Judge W. R. Garrett to sixty days in the county jail; sentence suspended for two years on condition that she no further violate the Medical Practice Act.

Trial of George Darrow, Azusa physician charged with murder in connection with the death of Mrs. Jennie Peterson, twenty-three years of age, was continued yesterday by Superior Judge Wood to September 6 next. Mrs. Peterson is asserted to have died of an illegal operation the state charges was performed by Doctor Darrow. . . . (Los Angeles *Times*, August 27, 1929).

According to the report of Special Agent Davidson, "Dr." d'Orgler, alias "Dr." de Zita, appearing at an Oakland theater, whose handbills announced him as Morocco's mystic seer, psycho-analyst. . . . "who sees all, knows all, and tells all," was found guilty in the San Francisco Police Court, September

7, 1929, and sentenced to sixty days in the county jail, such sentence being suspended on condition that he leave San Francisco on or before Tuesday, September 10. The investigator reports finding several prescriptions written by "Dr. William d'Orgler," who claims to have been licensed in Oregon but lost his license because of alleged illegal operations. However, the Oregon Board of Medical Examiners related that they find no record of such an individual.

That "Doc" G. O. de Moss, Tracy and Reno gambler, was not one of the machine gun bandits who robbed the Southern Pacific train of \$16,000 at McAvoy, Contra Costa County, on June 22, was the declaration of four passengers who confronted him in the San Jose jail, which was announced yesterday in the sheriff's office in Martinez . . . (San Francisco *Chronicle*, August 22, 1929). It is reported that George de Moss is now held in the Santa Clara County jail on an asserted charge in connection with the death of a vegetable peddler, which followed an alleged assault on the county road. According to the State Bureau of Criminal Identification, he is alleged to be Dr. George Olem de Moss, licensed in Illinois in 1914 and in Washington in 1921.

A. Dominguez, known as the "miracle man," was on September 3, 1929, found guilty in San Bernardino of violation of the Medical Practice Act, and sentence is set for September 14, 1929. Previous entries.

It is reported that Emily Fonceca on August 2, 1929, pleaded guilty in the Municipal Court, Los Angeles, on a charge of violation of the Medical Practice Act, and was sentenced to ninety days in the city jail; sentence suspended for two years' probationary period.

Dr. Thomas Greig, fifty-one, of 2667 Telegraph Avenue, was committed yesterday to the Ukiah State Hospital by Superior Judge J. J. Allen. He was arrested Monday, when he frightened patients in his office by flourishing a revolver, and fired two shots at Police Inspector Gene B. Woods and E. C. Terry. . . . Doctor Greig's wife told the police that her husband was in an alcoholic stupor when he fired. Dr. H. A. Makinson, Dr. Sydney Smith, and Judge Allen, following an examination of Doctor Greig, found him not insane but so addicted to alcohol that he had lost self-control . . . (San Francisco *Examiner*, August 18, 1929).

J. Q. Heffner, who has been going around the community giving what he calls "chirothesian" treatments, has been arrested, it is reported, and was fined \$100 and given a ten-day sentence in the county jail. The arrest was made as the result of a report made by a local chiropractor, who informed the State Chiropractic Board. The board sent an inspector to investigate the matter, and it was found Heffner was practicing without a license (Montebello *News*, July 26, 1929).

Arrested during the investigation of a nation-wide diploma mill, Dr. Kimi Higashi, forty-six, 111 North Bunker Hill Avenue, faced preliminary hearing today. The specific charge against the Japanese doctor is violation of the felony gun law, which makes the possession of a weapon by a man previously convicted of a felony a penitentiary offense. Higashi was arrested upon information given the police by a Chinese merchant, who says he was approached by the Japanese with a fake medical diploma who offered it for sale. According to the story told by the Chinese, Higashi guaranteed that the owner of the diploma would be able to sell narcotics without being subject to arrest . . . (Los Angeles *Record*, July 30, 1929). Previous entry, September 1929.

According to reports, Elida Salis was on September 4 found guilty of violation of the Medical Practice Act and sentenced to ninety days in the county jail, suspended for two years on condition of no further violations of the Medical Practice Act. She is related to have treated Mexicans with herbs, medicines, etc.; also treated broken arms and legs without any training whatsoever.

W. H. H. Miller has been indicted on the charge of counterfeiting and selling Illinois medical licenses. This is the same Miller who was found guilty and fined for irregularities in examinations and the issuance of licenses while he was director of the State Department of Registration and Education. Before his first trial, Miller's conduct had become so notorious that former Governor Small, tolerant as he was, dismissed him. The purpose of the registration bureau is to protect the public against incompetence and quacks. Instead the department has been used to protect and promote the fortunes of quacks and incompetents, butchers and bunglers operating with official sanction. This consequence, of course, was not foreseen by those who originally sponsored the creation of the department . . . (Editorial, Chicago *Tribune*, August 6, 1929).

Charged with performing an illegal operation upon a minor girl, Dr. Farrar B. Parker, forty-three, and his wife, Mrs. Lillian Parker, a nurse, were arrested yesterday at their home in Long Beach. The pair have been under surveillance since August 19, when an illegal operation is alleged to have been performed upon Irene Schrode, seventeen, of Los Angeles. Doctor Parker denied the charges, but both he and his wife were being held in the city jail last night (Los Angeles *Illustrated Daily News*, August 23, 1929).

Dr. Robert Thompson, central figure in the sensational murder of Eva Swanson, a nurse, here in 1910, may be brought back to San Francisco to complete his unfinished prison sentence for the crime. Paroled from San Quentin after serving twelve years of a twenty-year sentence, Thompson is now serving time in a New York penitentiary on another charge, it was learned today. State parole officials announced they plan to seek his extradition when his term in New York is up. He is charged with violation of parole. Eva Swanson died from the effects of an illegal operation in April 1910. Her body was dissected and buried in the basement of a house at 327 Eureka Street. Doctor Thompson was convicted of second degree murder (San Francisco *Examiner*, August 22, 1929). Robert Thompson was then reported known as Doctor Grant and, according to a recent report from New York, has other aliases.

While attorneys for Dr. Frank P. Westlake, found guilty of the "torso murder" of Laura Mae Sutton, today declared they will seek a new trial, Mrs. Emma Roach, juror, charged she was coerced into voting conviction. She said she had held out thirty-one hours, then submitted to the will of the other eleven, while believing the physician innocent. Westlake, a physician, was convicted for killing Mrs. Sutton for her estate (International News Service dispatch, dated Los Angeles, September 9, printed in the San Francisco *Examiner*, September 10, 1929). Former entry, July 1929.

Typhoid is in its seasonal rise.

Two cases of undulant fever were reported last week.

Two cases of tularemia were recorded during the past month.

Epidemic meningitis is not showing the same reduced prevalence that it showed early in July.